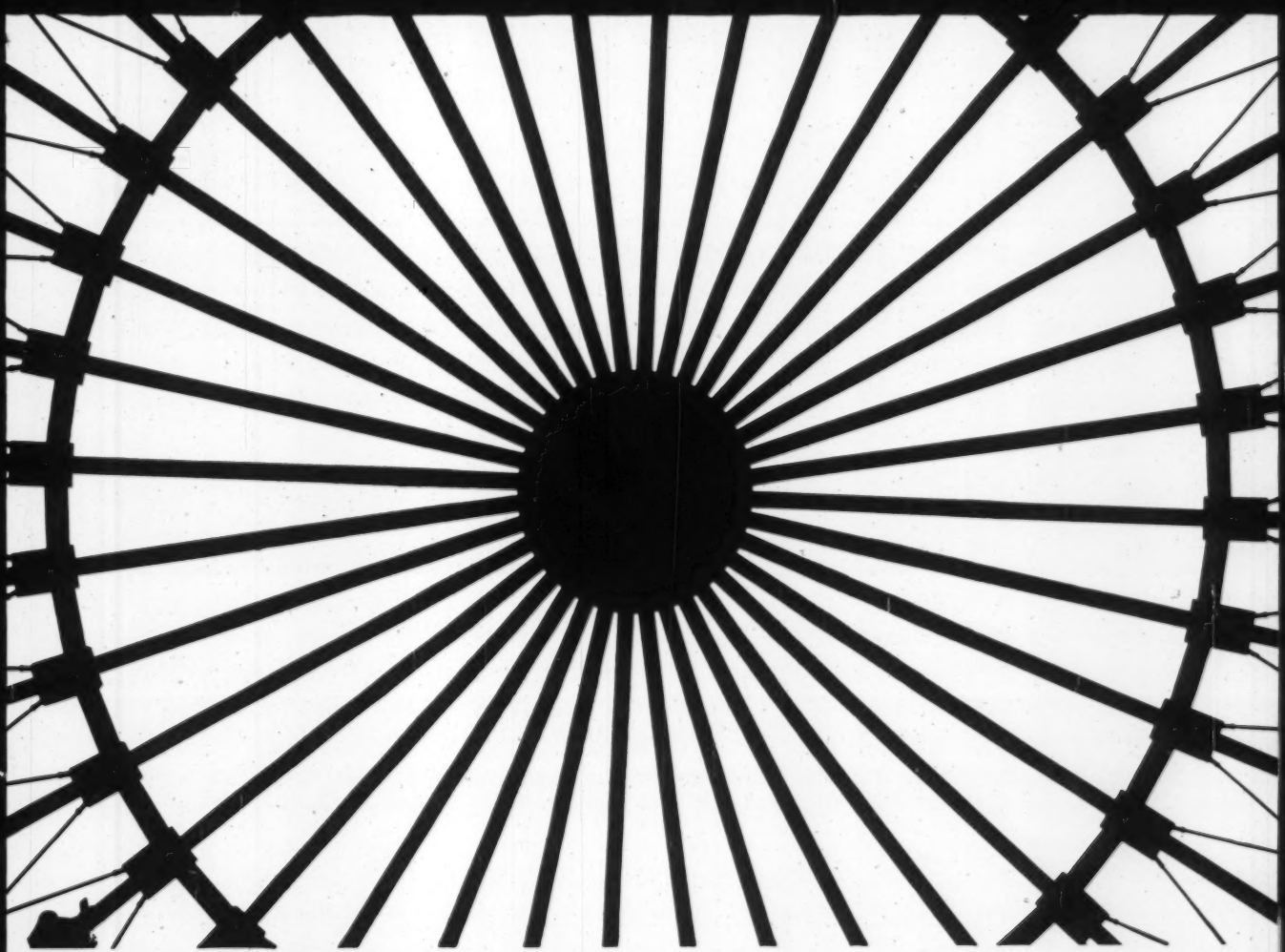
ENGINEERING NEWS-RECORD



Steel's a big wheel in church design p.39

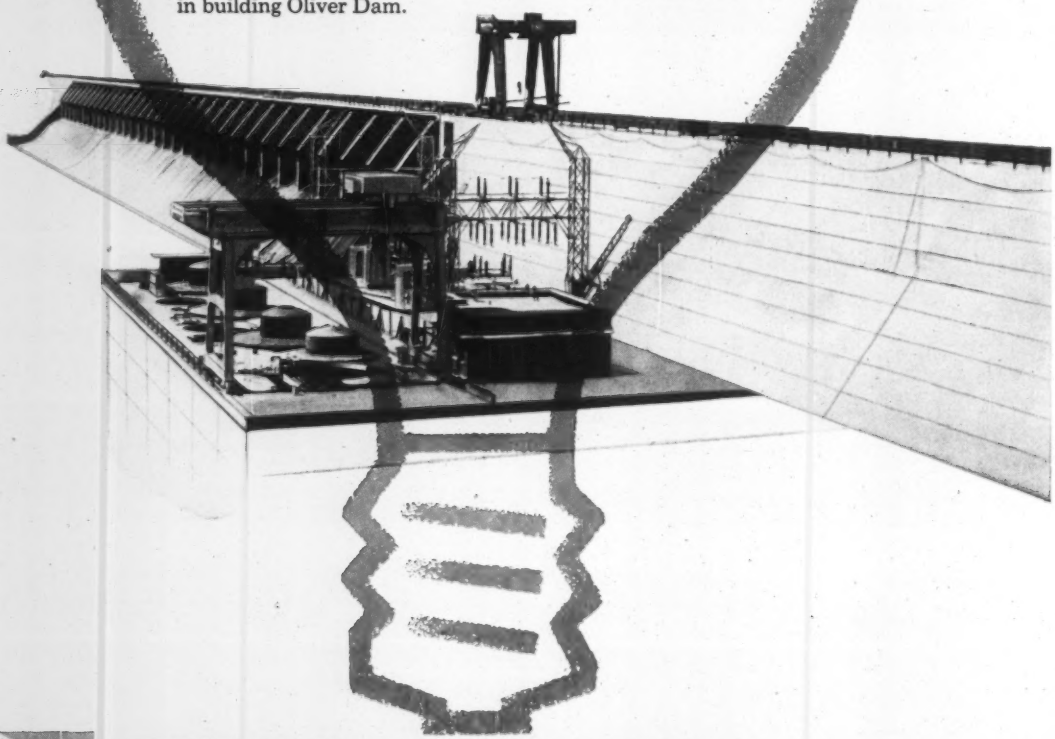
A McGRAW HILL PUBLICATI

STEVENS RICE GS
UNIV MICROFILMS INC EDI
313 N FIRST ST
ANN ARBOR MICH

DESIGN FOR POWER ...IN CONCRETE

Georgia's James McCoy Oliver Dam, which went into service late in 1959, can produce some 255,000,000 kilowatt-hours of power a year—electricity equal to the needs of 65,000 average homes. This newest and most modern of the Georgia Power Company's hydro-electric generating stations has opened a new era of industrial development and economic growth for Columbus and the entire Chattahoochee Valley region.

Penn-Dixie supplied cement for much of the concrete used in building Oliver Dam.



PORTLAND PENN-DIXIE CEMENT

PENN-DIXIE CEMENT *Corporation*

REGULAR, HIGH EARLY STRENGTH AND MORTAR CEMENTS

OFFICES

New York
Philadelphia
Pittsburgh
Boston
Chicago
Detroit
Atlanta
Des Moines
Chattanooga
Nazareth, Pa.
Milwaukee
Petoskey, Mich.
Buffalo
Holland, Mich.

PLANTS

Bath, Pa.
Nazareth, Pa.
Penn-Allen, Pa.
West Winfield, Pa.
Buffalo, N. Y.
Kingsport, Tenn.
Richard City, Tenn.
Clinchfield, Ga.
Des Moines, Iowa
Petoskey, Mich.

DISTRIBUTING PLANTS

Chicago
Milwaukee
Detroit
Holland, Mich.

Penn-Dixie means Permanent Dependability

Another small fable with a large moral

A Gray Squirrel lived in a forest of great oak trees. The Squirrel dined sumptuously on the delicious acorns that grew high on the branches.

But one day a visiting squirrel told of another forest, quite far away, where the trees were not nearly so tall, and where the acorns were much easier to reach. The Gray Squirrel set out for those easy pickings in the distant forest. They were tasty indeed. On his third trip he met a Hungry Fox. End of story.

MORAL: Smart squirrels know it's wiser in the long run to gather acorns in their own back yard.

Whether your needs be acorns or steel, your safest, most reliable suppliers are right here at home. No one knows the needs of American steel buyers better than American steel makers. To serve you, and serve you well, is our primary concern—not just today and tomorrow—but year after year.

For quality steel of certified analysis, meeting the appropriate specifications, you can rely on Bethlehem Steel for such products as reinforcing bars, wire and wire products, pipe, structural shapes, plates, carbon bars . . . hot-rolled, cold-rolled, and galvanized sheets . . . transmission towers and other fabricated steel, wire rope, and industrial fasteners.

And remember, our engineers are on call to help you solve your steel-working problems.

Steel

for Strength
. . . Economy
. . . Versatility

BETHLEHEM STEEL

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

BETHLEHEM STEEL

for light-load excavations

GET FOSTER LIGHTWEIGHT PILING... PLUS

The big "plus" is safety with savings! Foster Lightweight Piling is the strongest made; yet because it's so easy to handle, it reduces your job costs.

Foster Lightweight Piling needs no special rig, can be driven by light hammers, and used over and over again. It pulls easily and leaves little void.

One more "plus": You can rent your piling from Foster and avoid the usual capital tie-up.

For all types of steel piling, for highway and construction products, call the Foster Specialist near you.

Write **L. B. FOSTER CO.** for Lightweight Piling Catalog EP-7. Pittsburgh 30, Chicago 4, Houston 2, New York 7, Los Angeles 5, Atlanta 8, Cleveland 35.

Faster From Foster

Piling • Pipe, Valves, Fittings • Rail

EIGHTY-SIXTH YEAR OF PUBLICATION

ENGINEERING NEWS-RECORD

ABP ABC MEMBER

Editorial Offices, 330 W. 42nd St., New York 36, N. Y.
New York- LOngacre 4-3000; Chicago - MOhawk 4-5800; San Francisco - DOuglas 2-4600
Washington - REpublic 7-6630

Editor, Waldo G. Bowman

Managing Editor, **Arthur J. Fox, Jr.**

Senior Editor, **Frederick S. Merritt**

Highways, Airports—Transportation
Leo J. Ritter, Jr., Edward M. Young, Jr., Joseph F. Wilkinson

Buildings, Bridges—Structures
David B. Hill, Marianne Stern Friedland, C. W. Griffin, Jr.

Rivers, Sanitation—Water Resources
James B. Sullivan, William W. Jacobus, Jr., Marie Zanfardino

Finance, Labor—Management
Robert J. Stinson, Charles J. Harding

Regional Editors
J. Roland Carr, *Chicago, 520 N. Michigan Ave.*
Martha Alexander, *Staff Assistant*
Lauress L. Wise, *San Francisco, 68 Post St.*

Copy—Production
Irwin Landau, Nancy Parkes, John C. Greenough, Robert M. Echols

Presentation
Harry W. Jensen, Robert G. Young

Correspondents, Bureaus
Leah Shanks

Statistics, Prices, Costs—Business News
Elsie Eaves, *Manager*
Julia Mahoney, *Construction Reports*
Mildred Wetzel, Marian Sciorra, Marie Moravsik, Elaine Chomyak, Elizabeth Werra, Eleanor Queret
James Webber, Ruth Carlson, *Economics*
William P. Larkin, *Prices, Wages, Indexes*
Evelyn Huber, Charlotte Foster, *Statistics*
Bertha Herrmann, *Unit Prices*

Editorial Research and Indexing
Eva Glerat, Rene Hay, Jane Jacobson

Consulting Editors: **Van Tuyl Boughton, Nathan A. Bowers**

Advertising Sales Manager: **Donald S. Robertson**

Circulation Manager: **Edward F. Bressler**

Washington Bureau, National Press Bldg., Washington 4, D. C., George B. Bryant, Jr., Chief. Alan Adams, Glen Bayless, Roy Calvin, Anthony DeLeonardis, John Donaldson, Jay Flocken, Boyd France, Donald Loomis, Gladys Montgomery, Arthur Moore, Seth Payne, Dean Reed, Morton Reichek, Caroline Robertson, Vincent Smith.

Domestic News Bureaus: Atlanta—801 Rhodes-Haverty Bldg., B. E. Barnes, Chief, Frances Ridgway; **Chicago**—520 N. Michigan Ave., Stewart Ramsey, Chief, Bruce Cross, Lois Dubin; **Cleveland**—55 Public Square, Arthur Zimmerman, Chief, Violet Forsha; **Dallas**—901 Vaughn Bldg., Marvin Reid, Chief, Lorraine Smith; **Detroit**—856 Penobscot Bldg., Donald MacDonald, Chief, Sally Ayling, Wesley Perry, Jr.; **Los Angeles**—1125 W. 6th St., Kemp Anderson, Jr., Chief, Michael Murphy, Marvin Petal; **San Francisco**—68 Post St., Jenness Keene, Chief, Donald Winston, Alison Hunt; **Seattle**—6040 Fifth Ave., N.E., Ray Bloomberg.

Foreign News Bureaus: London—John Shinn; **Paris**—Robert Farrell; **Mexico City**—Peter Weaver; **Bonn**—Morrie Helitzer; **Beirut**—O. M. Marashian; **Tokyo**—Sol Sanders; **Rio de Janeiro**—Leslie Warren; **Caracas**—John Pearson; **Moscow**—Ernest Conine.

Correspondents: In 70 principal U. S. cities and 70 cities throughout the world.
Director of News Bureaus: John Wilhelm; **Managing Editor,** Margaret Ralston.
McGraw-Hill Economics Department: Dexter M. Keezer, Director.

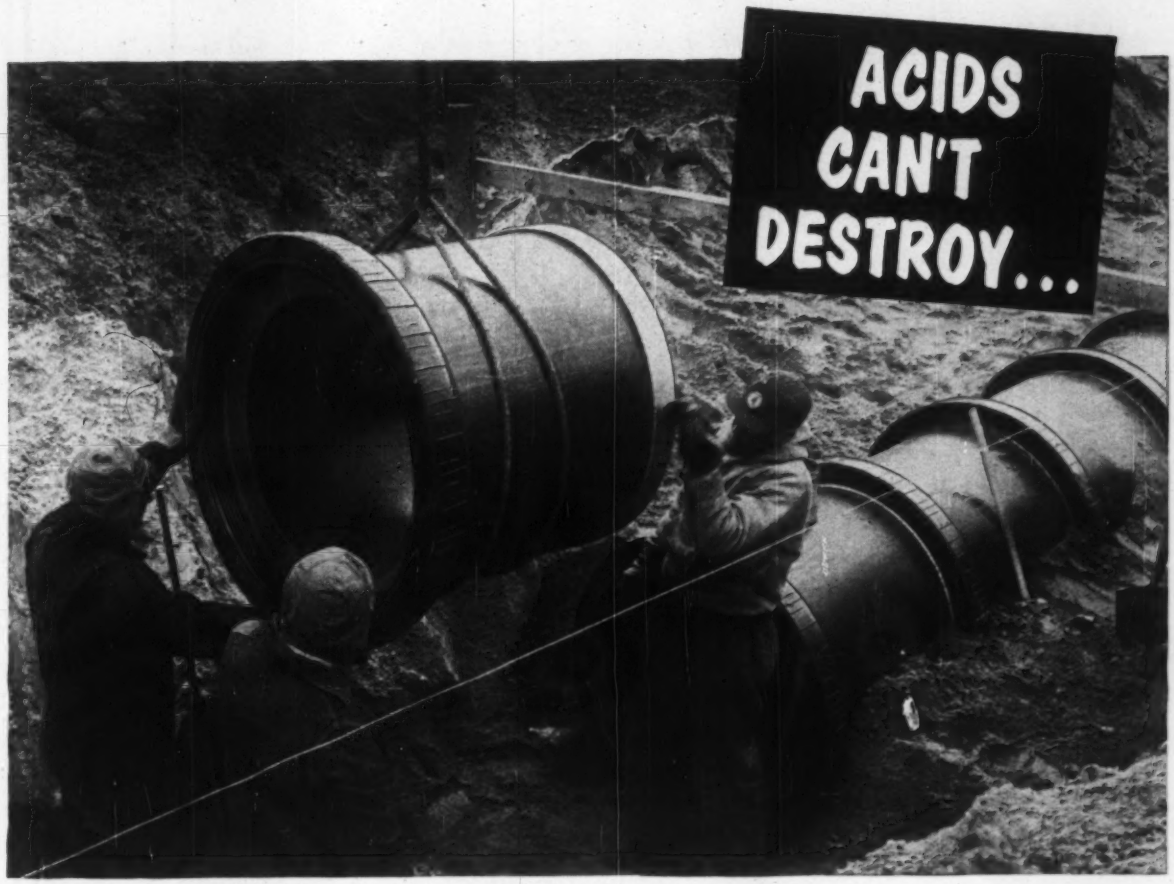
Publisher, Robert F. Boger

ENGINEERING NEWS-RECORD, Vol. 165, No. 2, July 14, 1960

Published weekly by McGraw-Hill Publishing Company, James H. McGraw (1860-1948), Founder. Publication Office, 99-129 North Broadway, Albany 1, N. Y. See panel below for directions regarding subscriptions or change in address. **Executive, Editorial, Advertising and Circulation Offices: McGraw-Hill Building, 330 W. 42nd St., New York 36, N. Y.** OFFICERS OF THE PUBLICATIONS DIVISION: Nelson L. Bond, President; Shelton Fisher, Wallace F. Traendly, Senior Vice Presidents; John R. Callaham, Vice President and Editorial Director; Joseph H. Allen, Vice President and Director of Advertising Sales; A. R. Venezian, Vice President and Circulation Coordinator. OFFICERS OF THE CORPORATION: Donald C. McGraw, President; Joseph A. Gerardi, Hugh J. Kelly, Harry L. Waddell, Executive Vice Presidents; L. Keith Goodrich, Vice President and Treasurer; John J. Cooke, Secretary. **Subscriptions are solicited only from persons with identifiable commercial or professional interests in construction and building. Position and company connection must be indicated on subscription orders.** United States subscription rate for individuals in the field of this publication $6.00 per year, single copies 50 cents; foreign $20 per year, payable in advance. Second-Class mail privileges authorized at Albany, New York. Printed in U.S.A. Title registered in U.S. Patent Office. ©Copyright 1960 McGraw-Hill Publishing Co., Inc. All Rights Reserved.
UNCONDITIONAL GUARANTEE: We agree, upon request to our New York office, direct from paid-up subscribers, to cancel any subscription if ENGINEERING NEWS-RECORD's editorial service is unsatisfactory, and will refund the proportionate subscription price of any unmailed copies.

SUBSCRIPTIONS: Send subscription correspondence and change of address to Fulfillment Manager, ENGINEERING NEWS-RECORD, 330 W. 42nd St., New York 36, N. Y. Subscribers should notify, publisher *promptly of any change of address, giving old as well as new address, and including postal zone number,* if any. If possible enclose an address label from a recent issue of the magazine. Please allow one month for change to become effective.

Postmaster: Please send Form 3579 to Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.



UNIVERSAL *flexible-coupled* VITRIFIED CLAY PIPE

This pipe line was built to carry not only sewage, but also the acid-laden wastes from a chemical plant. Designers of the double-duty line made *doubly* sure of complete acid-resistance throughout by using Universal Vitrified Clay Pipe, coupled with equally acid-resistant neoprene flexible gaskets.

The line was constructed for the Cincinnati-Toms River Chemical Co., Toms River, New Jersey. A. M. Kinney Inc., Cincinnati, Ohio, were Architects and Engineers. 27" A.S.T.M. C-200 Vitrified Clay Pipe with Tylox neoprene flexible couplings was installed by Riggs Distler & Co., Baltimore, Md.

Design and build *your* waste disposal lines for everlasting immunity to sewerage and industrial waste acids. Plan on using Universal Vitrified Clay Pipe and Flexible Couplings. Contact us for details.

6095

UNIVERSAL SEWER PIPE DIVISION

UNITED STATES CONCRETE PIPE CO.

A Subsidiary of Pittsburgh Coke and Chemical Company

SALES OFFICES:

Baltimore 27, Md.—Halethorpe Branch, Box 7428 ..... Tel. CI-2-7400
Philadelphia, Pa. (Mail—Bristol, Pa.) ..... Tel. EN-6015
Bristol, Pa., Box 30 ..... Tel. ST-8-5571
Cincinnati 44, Ohio, Box 536 ..... Tel. LO-1-7846
Ft. Lauderdale, Fla., Box 958 ..... Tel. LU-3-7220
Kalamazoo, Michigan ..... Tel. DA-7-3016
Pittsburgh 25 (Neville Island), Pa. ..... Tel. FE-1-5848

GENERAL OFFICES • 1500 Union Commerce Bldg. • Cleveland 14, Ohio • Tel. MAIN 1-5240

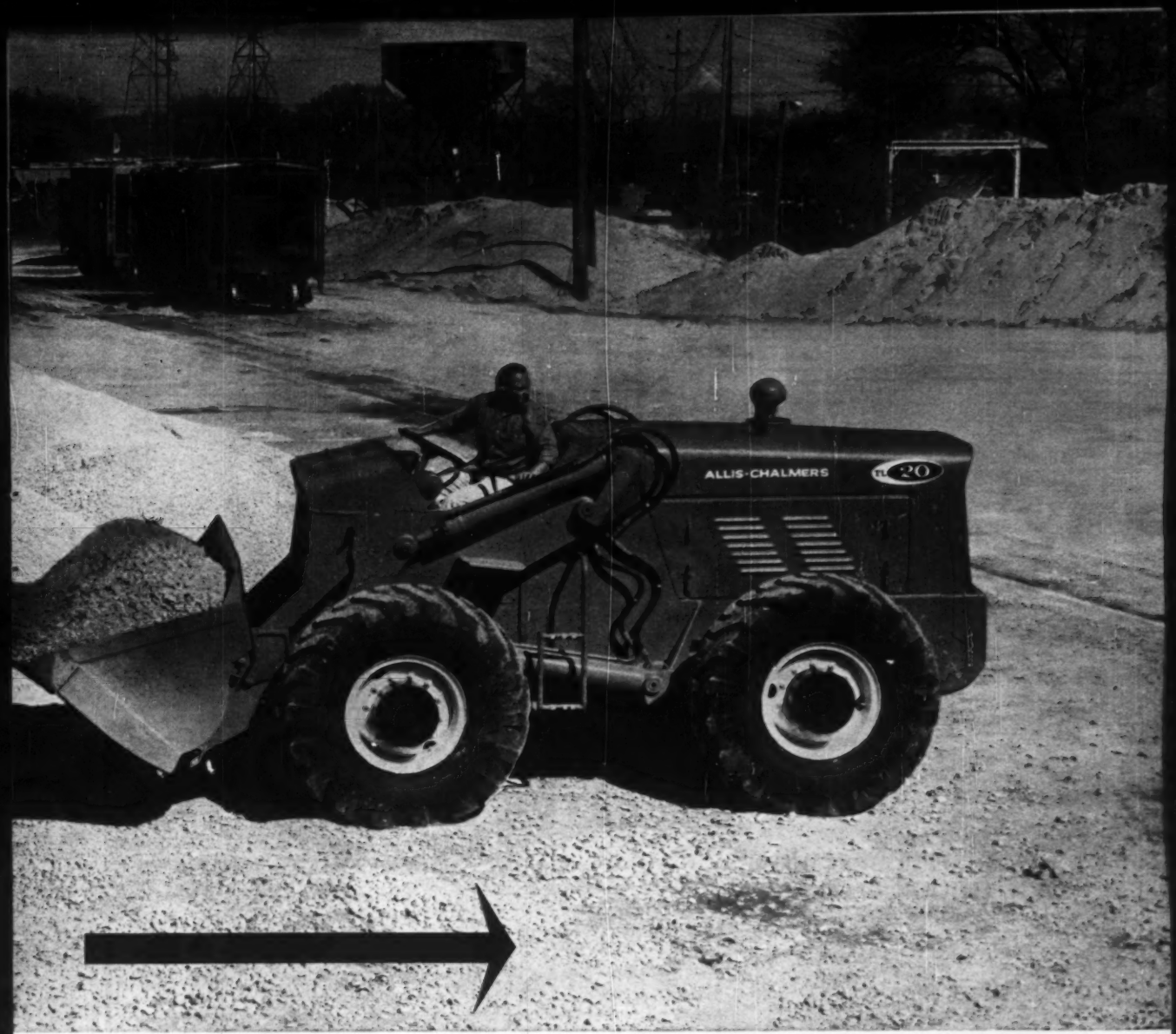
ONLY LOADER WITH.

You shift from any one gear to any other—forward or reverse... on-the-go. Allis-Chalmers tractor loaders make fast work far easier for any operator.

It's simple for a tractor loader operator to work faster—get more done. It's just as easy for him to go into a high gear as into a low gear—forward or reverse. ONE LEVER controls both speed and direction. No fumbling around with two or more levers or a combination of levers and foot pedals.

Besides operating simplicity, a tractor loader has *firmly connected axles*—attached to frame with 2-inch diameter steel pins . . . no rolling and shifting under load. *Extra stability* lets operators get and deliver

move ahead with



. SINGLE-LEVER SHIFT

bigger loads with greater comfort. Add *extra reach* for fast, even dumping and you can see why production is higher with an Allis-Chalmers tractor loader. Let your dealer show you. Allis-Chalmers, Construction Machinery Division, Milwaukee 1, Wisconsin.

The "Big Three" tractor loaders range in size from the TL-14 with 5,300-lb carry capacity to the TL-20 (shown) with 9,000-lb carry. Each has a family of buckets—18 bucket loader combinations in all.

ALLIS-CHALMERS

. . . power for a growing world

*PROVED!
ACROSS THE NATION... ALLIED Jet Seal®

THE SUPERIOR JOINT SEALANT

JET SEAL APPLICATORS OFFER FAST, EFFICIENT OPERATION

The Allied-Stroud Applicators, Model 8591-D (shown above) and the NEW COMPACT Applicator (Model X691-E) offer the most efficient and complete method of joint sealant application for any sealing job.

Manufactured by Allied-Stroud Corp., a division of Allied Materials Corp., the Allied-Stroud Applicators are the ONLY sealant application equipment authorized for the application of Allied JET SEAL (Products 9015H Highway, 9015M Military, 9015T Hydraulic).

For complete detailed information about the Allied-Stroud Applicators and Allied JET SEAL, the Original two-component, polysulfide, polymer, elastomeric joint sealing compound, write to:

*

USED IN MAJOR PROJECTS EVERYWHERE
(Partial List)

- Los Angeles Internat'l Airport
- Yuma Naval Air Station, Arizona
- O'Hare Internat'l Field, Chicago
- New York Internat'l—Idlewild
- Miami Internat'l Airport
- Niagara Power Project
- New York State Thruway
- Tennessee Highway Dept.
- California Highway Dept.
- Connecticut Hwy. Dept.
- Texas Hwy. Dept.

CHECK ALLIED JET SEAL'S EXCLUSIVE ADVANTAGES

On airfields, highways, bridges, hydraulic projects—Allied JET SEAL offers tested proof of time, labor, and money-saving performance. JET SEAL is the outstanding concrete joint sealant.

- It has positive adhesion, cohesion, resilience and ductility at low temperatures (−20°F).
- It has no flow, even at elevated temperatures (200°F). Ideal for sealing vertical and overhead joints.
- Prevents penetration of water into joints. Unaffected by oils, solvents, highway salts, hydraulic fluids.
- Prevents incorporation of incompressible materials. Is extremely quick curing at all temperatures.

ALLIED MATERIALS CORP.

PRODUCERS, REFINERS AND COMPOUNDERS OF SPECIAL ASPHALT PRODUCTS

ALLIED BUILDING 5101 N. PENNSYLVANIA P. O. BOX 7278 39TH STREET STATION OKLAHOMA CITY, OKLAHOMA

PLANTS: STROUD, OKLA. DETROIT, MICH. LOS ANGELES, CALIF.

Why MWD Carries Weight

SIR—Your editorial "The Colorado River Decision" (ENR June 2, p. 92) contains a surprising statement, and I am wondering to what extent you have been given all of the facts before writing this editorial. I have reference to the sentence, "Even without the solid support of the Metropolitan Water District of Southern California it appears that the $1.75-billion bond issue can have a fair chance of getting the necessary simple-majority vote at next November's election if these cohesive efforts are forthcoming."

Having had the opportunity to meet, as a member of a board of consulting engineers, with the directors of the Metropolitan Water District almost three years ago, followed by considerable study of the District operations, I consider it proper to raise a question of vital concern to the entire engineering profession.

In 1955 the American Society of Civil Engineers awarded a bronze plaque to the Metropolitan Water District of Southern California that declared the Colorado River Aqueduct as one of the seven modern civil engineering wonders of the United States. This recognition was unquestionably well deserved.

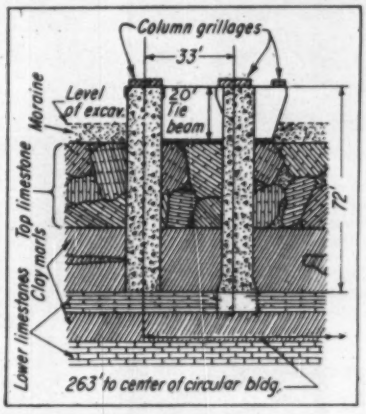
Those of us who are in a position to recall the legislative debates and published articles on difficult engineering problems and their brilliant solutions, will never forget the rich heritage of professional engineering contributed by such men as Frank E. Weymouth, the first general manager and chief engineer, followed by Julian Hinds and Robert B. Diemer, and such distinguished consulting engineers as Thaddeus Merriman, A. J. Wiley, and Richard R. Lyman. Furthermore, one need only examine the annual reports of the Metropolitan Water District to recognize the administrative resources of the organization and its sense of obligation to all constituents of the District, as well as to the taxpayers and investors.

This resource of administrative competence and notable public service, in which the engineering profession can take justifiable pride, cannot be ignored in the deliberations regarding new proposals for future water supplies. As a matter of fact, it would seem reasonable to examine in a most respectful manner any factors on which the District is unable to lend its "solid support."

Considering the fact that the average voter has little or no comprehension of what is involved in a $1.75-billion bond issue, and is therefore likely to make his choice on limited grounds, it is astonishing to find such an important publication as Engineering News-Record predicting a "fair chance of getting the necessary simple-majority vote." and casually dismissing the significance of any reservations held by the most experienced agency in the state.

ADOLPH J. ACKERMAN
Consulting Engineer
Madison, Wis.

Editor's Note: Mr. Ackerman's praise of the Metropolitan Water District of Southern California has our complete agreement. Moreover, since its standing in California is such that any position it took against the bond issue would carry great weight, it seemed worth noting that public sentiment, at the time the editorial was written, seemed to favor the bond issue. To have listed MWD's reservations would not have made this point any clearer.



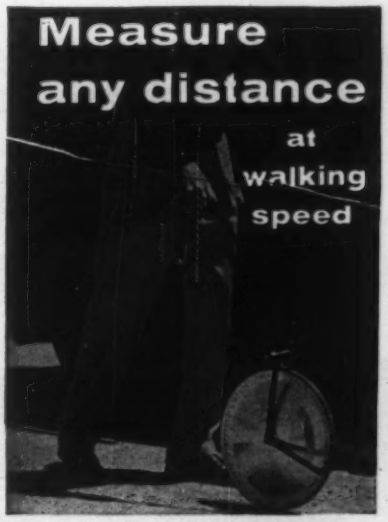
Girders 72 ft Deep

SIR—In the article "Foundations That Set Precedents" by Carlton S. Proctor (ENR May 19, p. 43) it is stated that the foundation girder is 72 ft deep. I believe this must be in error.

ALLEN N. OLSEN
Houston, Texas

Editor's Note: Mr. Olsen's disbelief was shared by others, but the figure is correct. The two circular foundation girders, which support the main columns of the Palace of the Soviets in Moscow, are actually 72 ft deep, as shown in the section above, taken from one of the file drawings of Moran, Proctor, Mueser & Rutledge.

Engineering News-Record welcomes expression of opinions from its readers. Comment should be as brief as possible and pertinent to subjects of current construction importance. Letters should be addressed, Editor Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.



records 100,000 ft. *automatically!*

It's So Easy to measure with a Rolatape ...and you save time on every estimating job...no tapes to wind, no helper is required. You get precision-accurate measurements every time.

Records Feet automatically and the accumulated total is always in full view.

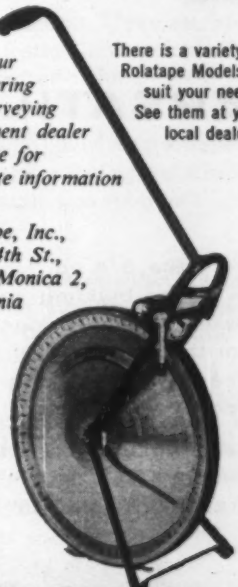
Shows Inches, and Fractions of an inch. Wheel is calibrated in inches and fractions for quick easy reading.

Shows Tenths of a foot. Wheel is calibrated in tenths on reverse side for engineers.

See your engineering and surveying instrument dealer or write for complete information today!

Rolatape, Inc., 1741 14th St., Santa Monica 2, California

There is a variety of Rolatape Models to suit your needs. See them at your local dealers.



Rolatape
Measuring Wheels

SPEAKING OF VERSATILITY

A versatile 3/4 yd. Marion 35-M is making one bridge-building specialist's job easier on a state highway bridge contract in Indiana. From the wrecking of the old to the erection of the new spans only this Marion and a bulldozer were used.

Ease of conversion is the key to this machine's versatility. Split lagging lets the operator switch front ends in a matter of minutes.

Smooth, cool performance is assured through big-diameter swing clutches which dissipate heat quickly... even in demanding dropball work.

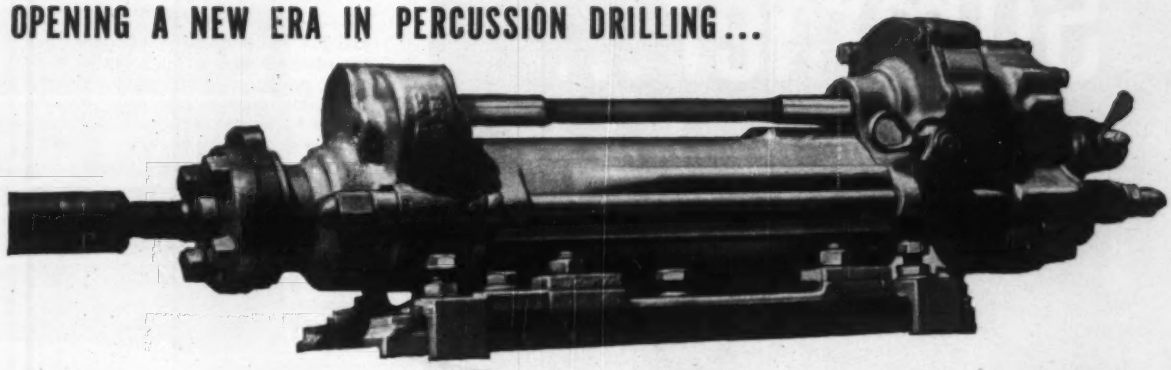
There are a host of other reasons why a growing number of contractors are looking to Marion for their bridge building crane equipment. Your nearest Marion distributor has the full story.

You get **MORE** *with* **MARION**

Marion Power Shovel Company, Marion, Ohio

A Division of Universal Marion Corporation

OPENING A NEW ERA IN PERCUSSION DRILLING...



New PR123 GARDNER-DENVER Power Rotation Rock Drill

ABSOLUTE CONTROL

New Gardner-Denver PR123 gives your operator absolute and independent control of all these vital functions:

ROTATION WITHOUT IMPACT —efficient gear motor supplies rotation in either direction, even when drill is not impacting. Three rotational speeds.

IMPACT WITHOUT ROTATION —separate control provides drill impact without rotation. Percussion can be varied from light to heavy blows, and used to loosen couplings or stuck steel.

IMPACT AND ROTATION —use light percussion and rapid rotation for soft formations . . . or heavy impact and slow rotation for drilling hard rock.

UP TO 30% FASTER PENETRATION

New PR123 uses all hammer energy for percussion. There's no rotational drag on piston hammer. Results: faster hard-rock drilling than ever before. Depth of hole does not affect drilling speed.

SELECTIVE DRILLING

Now your driller can select the right combination of rotation speed, impact force, feed pressure and hole blowing for fastest penetration in any type of rock—can change drilling action as soon as the bit hits a new formation.

NO ROTATION PARTS IN CYLINDER

New PR123 has no rifle bar, ratchet ring, pawls, or other internal rotation parts that frequently cause trouble. Rotation is supplied by an efficient gear motor, and a torsion bar absorbs rotational shock between shank and motor.

POWER COUPLING AND UNCOUPLING

Independent power rotation is a time-saver. Rotation without impact permits power coupling of threaded rod without thread damage. Reverse rotation speeds uncoupling when coming out of the hole. Independent power rotation also helps free stuck steel.

Specifications: Piston diameter : 4½". Length: 38½". Weight, less mounting: 290 pounds.

EQUIPMENT TODAY FOR THE CHALLENGE OF TOMORROW

GARDNER-DENVER

Gardner-Denver Company, Quincy, Illinois

In Canada: Gardner-Denver Company (Canada), Ltd., 14 Curity Ave., Toronto 16, Ontario

Summer...

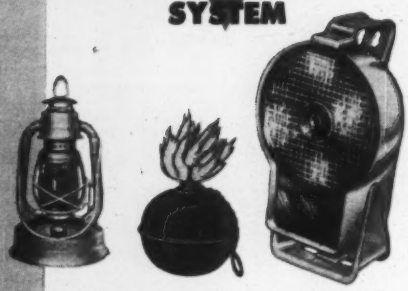
now is the time to properly light your construction hazards

USE THE

DIETZ 3 WAY HAZARD WARNING SYSTEM

It's Summer... more highway projects... more traffic, too!

Whatever the season, wherever the road . . . it's always the right time to adequately light your highway hazards. Protect the public and you protect yourself.



LANTERNS TORCHES VISI-FLASH

NEW! DIETZ HAZARD WARNING PLANNER

A Practical On-the-Job Tool! Quickly and easily shows how, when, and where to use each type of warning light for maximum safety under all weather conditions and all types of roads and speeds.

Send $1. for each Planner — personalized with your name

Use Dietz Visi-Flash Lights to alert the oncoming driver. Brightest, safest, most trouble-free flashers on the market. Warn: "Danger Ahead" for up to 1500 hours without changing batteries.

Use Dietz Lanterns to locate hazard in relation to driver's position. Show exact location, shape, extent, and boundaries of hazard area. Burn up to 100 hours.

Use Dietz Torches to guide driver around the hazard. Fully illuminate the danger in every weather. Burn up to 48 hours on low cost kerosene.

R. E. DIETZ COMPANY
Dept. 56 225 Wilkinson St., Syracuse 1, N.Y.

Go DIETZ *and you go Safely*

. . . **Reader Comment**

Joints or Reinforcement?

SIR—I disagree with the comments of Mr. Ely Ryder (ENR June 16, p. 12) regarding problems with joints in concrete pavements. Mr. Ryder stated that continuous reinforcement is the answer because it is cheaper and better, and asks the question "Why are engineers so backward about coming forward?"

The facts are that continuously reinforced pavement is considerably more expensive than present pavements, and that joints no longer have to be a nuisance. Forward moving engineers are not backward about setting this matter straight, once they learn of a new joint forming device now in use.

Since introduction in the summer of 1958 of Unitube, a hollow metal insert made by our company (ENR May 21, 1959, p. 54), state and federal agencies have used over 4,000,000 ft in highways and airfields in 15 states. They have found that they obtained a smooth riding surface, and low maintenance, without increased first cost.

R. J. JOHNSON
Middlestadt Corp.
Baltimore, Md.

SIR—Referring to the reader comment "Joints Are a Nuisance" (ENR June 16, p. 12), I agree that joints are a problem in pavement construction. However, I have yet to see a continuously reinforced pavement that corrected a "bad foundation condition." Such a condition is corrected or prevented by the engineers in the soils laboratory.

Expansion joints should be considered as insurance policies to take care of the movement in pavements that is both predicted and unexpected. The progressive engineer recognized that man is not infallible and pavements are constructed outdoors rather than under controlled and ideal conditions.

Reinforcement is a step in the right direction, but certainly not a panacea. It doesn't eliminate contraction cracking.

GEORGE C. VYTLACIL
Servicised Products Corp.
Chicago, Ill.

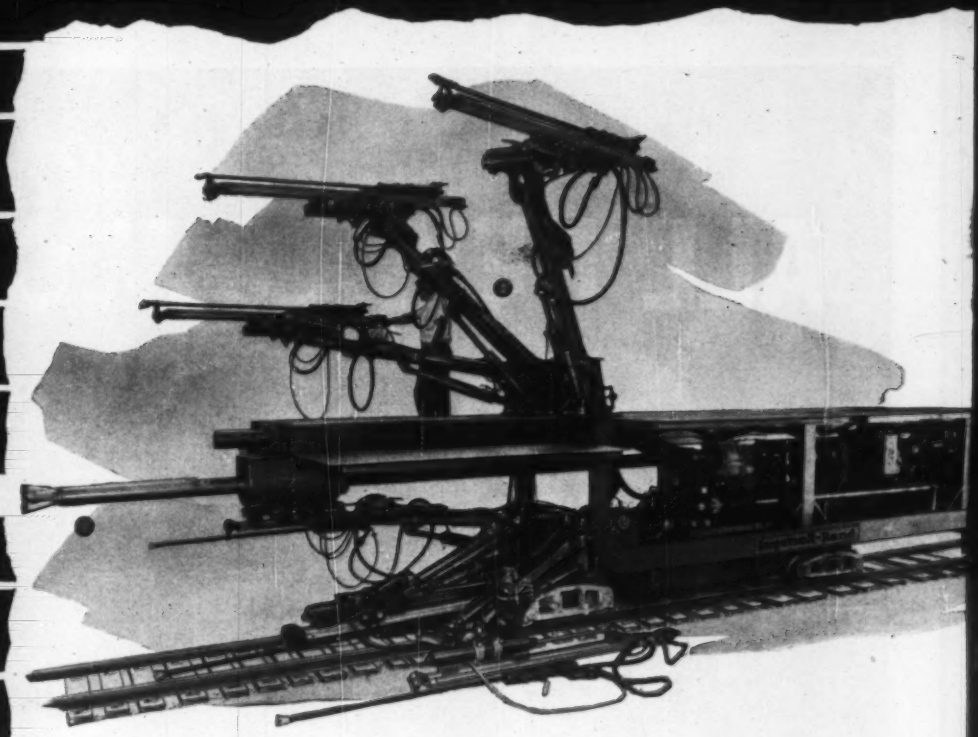
For Your Calendar . . .

Prestressed Concrete Institute, annual convention, Hotel Statler Hilton, New York City, Sept. 27-30. Write: P. Stauffer, 131 Cedar St., New York 6, N. Y.

American Society of Civil Engineers, annual meeting, Hotel Statler Hilton, Boston, Oct. 10-14. Write: E. S. Kirkpatrick, American Society of Civil Engineers, 33 W. 39th St., New York, N. Y.

Society for Experimental Stress Analysis, annual meeting, Hotel Claremont, Berkeley, Calif., Oct. 19-21. Write: R. F. Steidel, Jr., Engineering Design Department, University of California, Berkeley 4, Calif.

Building Research Institute, fall conference, Shoreham Hotel, Washington, D. C., Nov. 15-17. Write: Building Research Institute, 2101 Constitution Ave., Washington 25, D. C.



How Ingersoll-Rand's NEW

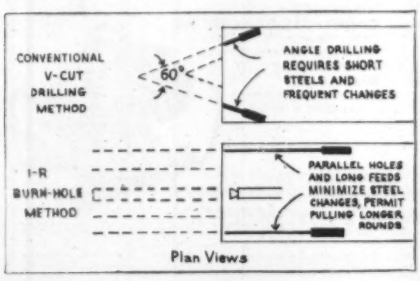
BIG BURN-HOLE METHOD

drives tunnels 20% to 30% faster

On seven major tunnel projects, the new I-R Burn-Hole Method has already *proved* its superiority – increasing the rate of advance as much as 30% over previous drilling methods. Here are three reasons why.

1. DHD Burn-Hole Drill – Heavy-duty I-R Downhole Drills are *designed* for 6" to 10" diameter Carset bits, and are not overworked 4" bit machines trying to drill 6" to 8" holes. The I-R machines drill big burn holes fast, *without overloading*, even in the hardest rock. They stay underground – no costly delays due to broken couplings, drill steel, rifle bars, nuts, pawls, etc. As shown on the diagrams below, the I-R burn-hole method can eliminate steel changes and permit pulling longer rounds with no overall increase in cycle time.

2. I-R Hydra-Booms give smooth effortless hydraulic control of all blast-hole drill positioning, with maximum safety and dependability. And Ingersoll-Rand can supply heavy-duty drifters, reversible aluminum shell screw feeds up to 144" or air-driven chain feeds to any desired length.

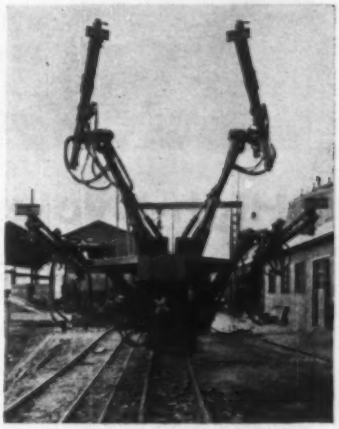

CONVENTIONAL V-CUT DRILLING METHOD
60°
ANGLE DRILLING REQUIRES SHORT STEELS AND FREQUENT CHANGES
I-R BURN-HOLE METHOD
PARALLEL HOLES AND LONG FEEDS MINIMIZE STEEL CHANGES, PERMIT PULLING LONGER ROUNDS
Plan Views

3. Fog Eliminator, designed and perfected by Ingersoll-Rand electrically heats the drilling air, eliminating fogging at the work face, promoting safer working conditions, providing better drill lubrication and saving concrete by getting rid of wild holes. In addition, preheating the air increases its pressure, providing additional energy for more efficient drill operation.

If you want to speed tunnel driving and cut drilling costs, look into the new I-R Burn-Hole Method. Ask your Ingersoll-Rand engineer for complete information today.

Current and recently completed famous tunnel jobs using I-R burn-hole method

Delaware Aqueduct – 14 foot bore – 2 Jumbos (*First major "highball" tunnel job ever to use the I-R "big burn hole" method and I-R Fog eliminator.*)
Italy – Three hydro-electric jobs – 25 feet bore
France – Mont Blanc Tunnel – 33 foot bore
Malaya – Hydro-electric job – 12 foot bore
Wachusett Marlboro Tunnel – 17½ foot bore
Chicago – Columbus Avenue Tunnel – 14 foot bore
Pyrenees – Hydro Electric Project – 12 foot bore



Tunnel jumbo with DHD Burn-Hole Drill and four Hydra-Boom mounted drifters.

Ingersoll-Rand
154 A5 11 Broadway, New York 4, N. Y.

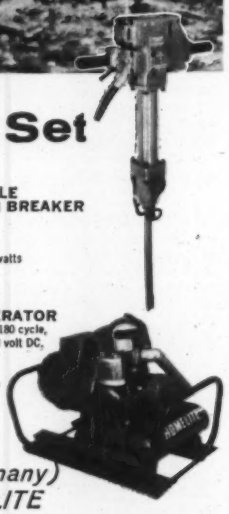
A CONSTANT STANDARD OF QUALITY IN EVERYTHING YOU NEED FOR DRILLING ROCK

ALL NEW-LOW COST

High-Cycle Electric Paving Breaker Set

COMPARE THESE COSTS. This high-cycle electric paving breaker will do everything that a 45 lb. air hammer will do but look at the costs. A 45 lb. air hammer, hose and small air compressor cost at least $3,000. This paving breaker set . . . The BOSCH (Germany) Paving Breaker and the HOMELITE Generator to run it . . . cost about $1,300 combined. These are savings you'd like to pocket. But that is far from all.

COMPARE THESE RESULTS. Gets to the job faster. Compact and lightweight, the complete set can be rushed in a station wagon, small truck or car trunk. Makes less noise and pays an important, extra dividend. The HOMELITE Generator provides enough high-cycle power for two paving breakers; and in addition, 110 volts DC current for floodlights and AC-DC electric tools. Simple design and rugged construction assures minimum maintenance. And service, when necessary, is available in the sixty-five HOMELITE Factory Branches located throughout the country. Write for Bulletin L-827A, right now.

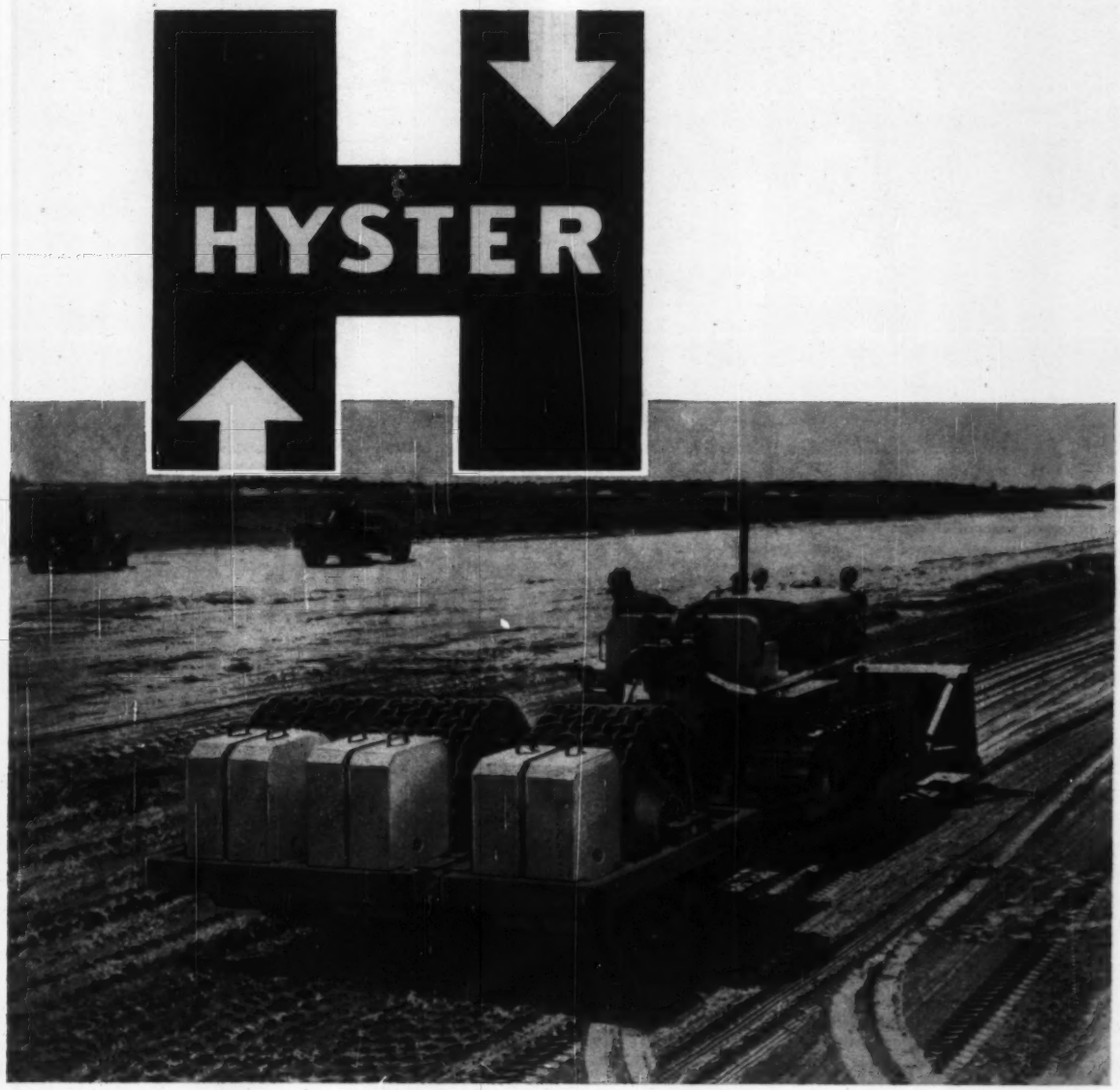


BOSCH HIGH CYCLE ELECTRIC PAVING BREAKER
Dimensions: 28" x 21" x 5"
Weight: 60 lbs.
Blows per Minute: 1250
Current Consumption: 1500 watts
Motor: 180 cycle, 230 volt, 3-phase AC (high-cycle)

HOMELITE CARRYABLE GENERATOR
Rating: 3000 watts, 230 volt, 180 cycle, 3-phase AC. 2500 watts, 110 volt DC.
Dimensions: 30" x 20" x 20"
Weight: 143 lbs.
Fuel Consumption: 1½ hours per gallon at full load.

HOMELITE
A DIVISION OF TEXTRON INC.
1107 Riverdale Ave., Port Chester, N. Y.
Manufacturers of Carryable Pumps, Generators, Blowers and Chain Saws
In Canada, Terry Machinery Co., Ltd.

Tools built by BOSCH (Germany)
Sold and Serviced by HOMELITE



New

Another Compaction Development

HYSTER® has it!

New Hyster three-drum Model D "Grid" and Tamping rollers cover 10 feet at a pass—increase production—reduce costs.

Two-drum units already in the field are easily converted to three-drum machines—hinge attachment of third drum frame prevents bridging when rolling uneven surfaces.

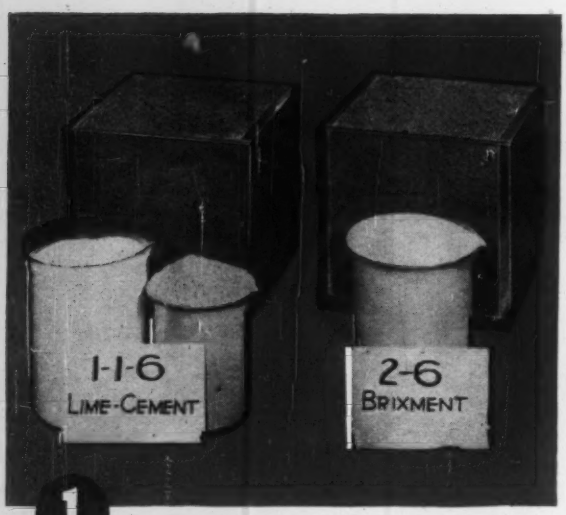
Call your Caterpillar-Hyster dealer for more details.

Hyster, "Grid" are registered trademarks of Hyster Company.

TRACTOR EQUIPMENT DIVISION—Construction and logging equipment
INDUSTRIAL TRUCK DIVISION—Lift trucks, mobile cranes, straddle carriers
MARTIN TRAILER DIVISION—Heavy machinery hauling trailers
INTERNATIONAL DIVISION—Overseas manufacturing, sales and service

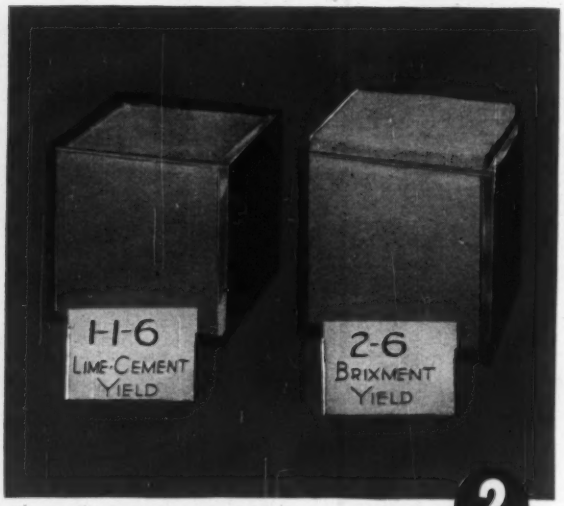
Factories: Portland, Oregon (Home Office) • Danville, Ill. • Peoria, Ill. • Kewanee, Ill. • Nijmegen, The Netherlands • Glasgow, Scotland • Sao Paulo, Brazil • Sydney, Australia (Licensee)

HYSTER COMPANY
TRACTOR EQUIPMENT DIVISION
P. O. Box 328 • Peoria, Illinois



1

Carefully measure out 1 cu. ft. of damp, loose sand (80 lbs.) and ⅙ bag of hydrated lime (8⅓ lbs.) and ¼ bag of portland cement (15⅔ lbs.). Also carefully measure out the same amount of sand and ⅓ bag of Brixment (23⅓ lbs.).



2

Mix each batch with sufficient water for good workable mortar, then place each batch into a 1 cu. ft. box (using "collars" on the boxes, if necessary to contain the mortar). Brixment yields 5% to 15% more mortar than cement and lime.

BRIXMENT produces greater mortar YIELD!

Because of its greater plasticity, Brixment will carry more sand than a 50-50 cement-lime mixture, and make strong, workable mortar.

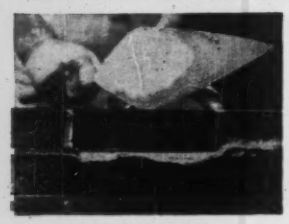
But even if the same amount of sand is used in both batches, Brixment will yield 5% to 15% more mortar*—and be much more plastic than the 50-50 cement-and-lime mixture.

But maximum yield is only *one* of the characteristics in mortar necessary to produce top-quality masonry *at lowest cost.* Several others are listed below—and *no other mortar combines ALL these characteristics to such a high degree as Brixment mortar.* It is this *combination* of advantages that makes Brixment superior to any mixture of portland cement and lime—and which also accounts for the fact that Brixment has been the leading masonry cement for over 40 years.

Louisville Cement Company, Louisville 2, Ky.

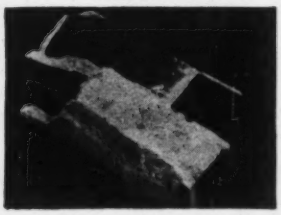
** The graduation of sand used in mortar has considerable effect on yield. This computation is the result of 131 field tests of Brixment with various sands, against a 50-50 cement-and-lime mix, over a period of four years.*

BRIXMENT MORTAR ALSO COMBINES THESE 8 OTHER ESSENTIAL CHARACTERISTICS

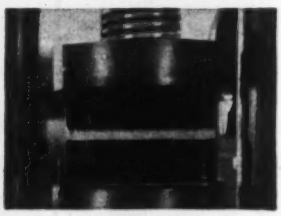


PLASTICITY

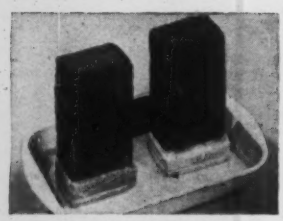
WATER RETENTION



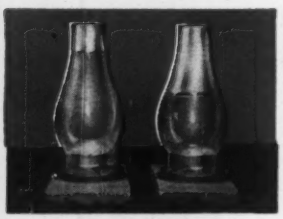
BOND



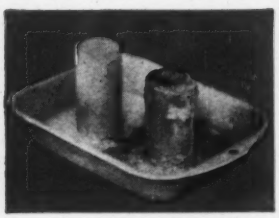
STRENGTH



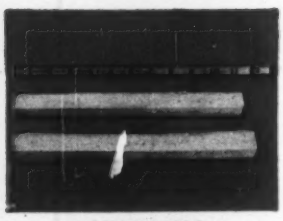
LOW EFFLORESCENCE



IMPERMEABILITY

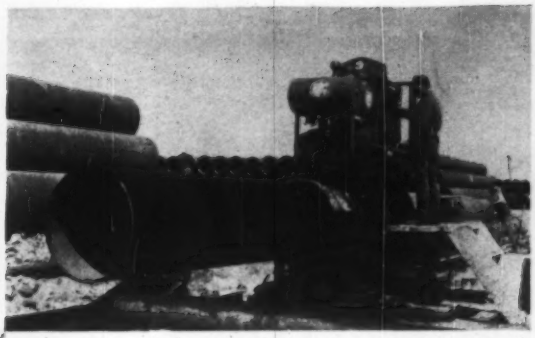


DURABILITY



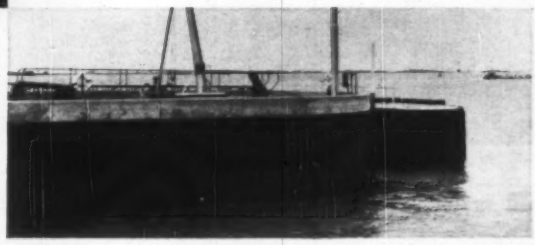
SOUNDNESS

COAL TAR makes the vital difference . . .



IN PIPELINE COATINGS

that give proved lifetime protection

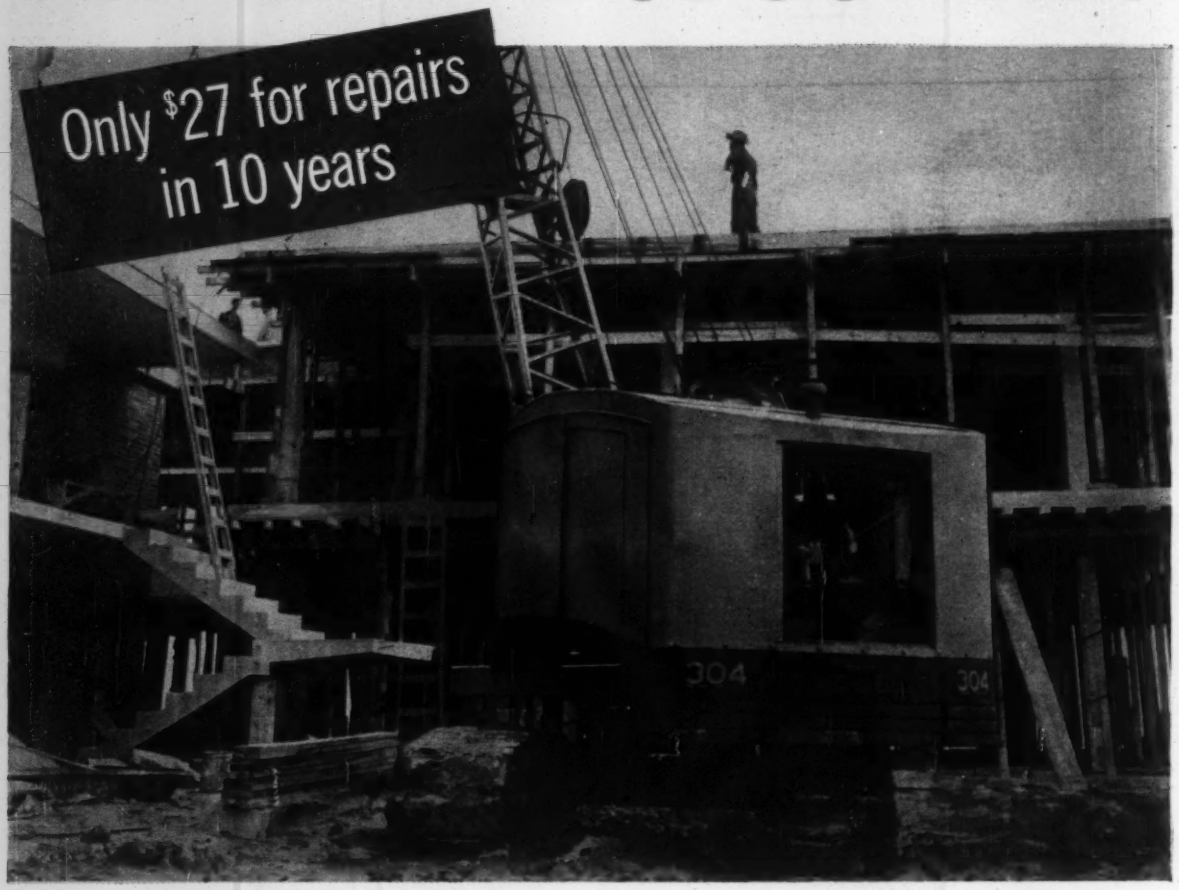


The headline might better read "that give *proved* life*line* protection," for the underground arteries supplying our gas and oil are truly lifelines. To keep these products flowing, modern pipeliners protect the steel pipe against corrosion by the use of protective coatings, supplemented with cathodic protection. But costs can sky-rocket if the coating fails, requiring heavy cathodic protection current. • That's why so many modern pipelines are protected with *proved* Bitumastic® Coal Tar Enamels: *proved,* because coal tar enameled lines have lasted for 30, 40, even 50 years underground! • You may not be a pipeliner, but the thick, tough waterproof protection of Bitumastic Coal Tar Enamels can help prevent corrosion *wherever* metals go underground . . . and underwater, too! Ask your Koppers corrosion-specialist for more details.

KOPPERS TAR PRODUCTS DIVISION, PITTSBURGH 19, PA.

District Offices: BOSTON • CHICAGO • LOS ANGELES • PITTSBURGH • NEW YORK • WOODWARD, ALABAMA

GET REAL PRODUCTIVITY



Get yourself a Diesel that will cost you only $27 for repairs in 10 years' hard work and you've put yourself away up front.

For, like Corpus Christi's A. E. Hinman Construction Company, you'll be dollars and dollars ahead of the game.

They put a 3-71 GM Diesel in a Koehring 304 ten years ago . . . added up their engine repair bills recently and discovered the only expense they'd had in all that time was $27 for injector repairs.

And in those ten years, the "Jimmy" Diesel has averaged about 2,000 hours per year—worked on all kinds of general construction jobs throughout South Texas.

President A. E. Hinman says, "We bought the GM Diesel because other operators had told us 'Jimmys' were trouble-free and very economical to operate." Now, with a decade of low-cost operation behind him, he's got firsthand proof.

You'll get more productivity—and profits—*from* your equipment with GM Diesels *in* your equipment. Wide parts interchangeability, for instance, will save you big money. Proof? Call your GM Diesel distributor—he's in the Yellow Pages under "Engines, Diesel"—or mail the postcard today.

GM DIESEL ALL-PURPOSE

SEND TODAY FOR THIS
FREE
BOOKLET
GM
GENERAL MOTORS
DIESEL
POWER
"Fuel Oil and High-R.P.M. Diesel Engines" has been written to help you select the type of fuel that will give you the most satisfactory engine performance regardless of engine make or design.

Please send me your booklet, "Fuel Oil and High-R.P.M. Diesel Engines."

NAME .....
(Please Print)

COMPANY .....

ADDRESS .....

CITY ..... COUNTY ..... STATE .....

BUSINESS REPLY CARD

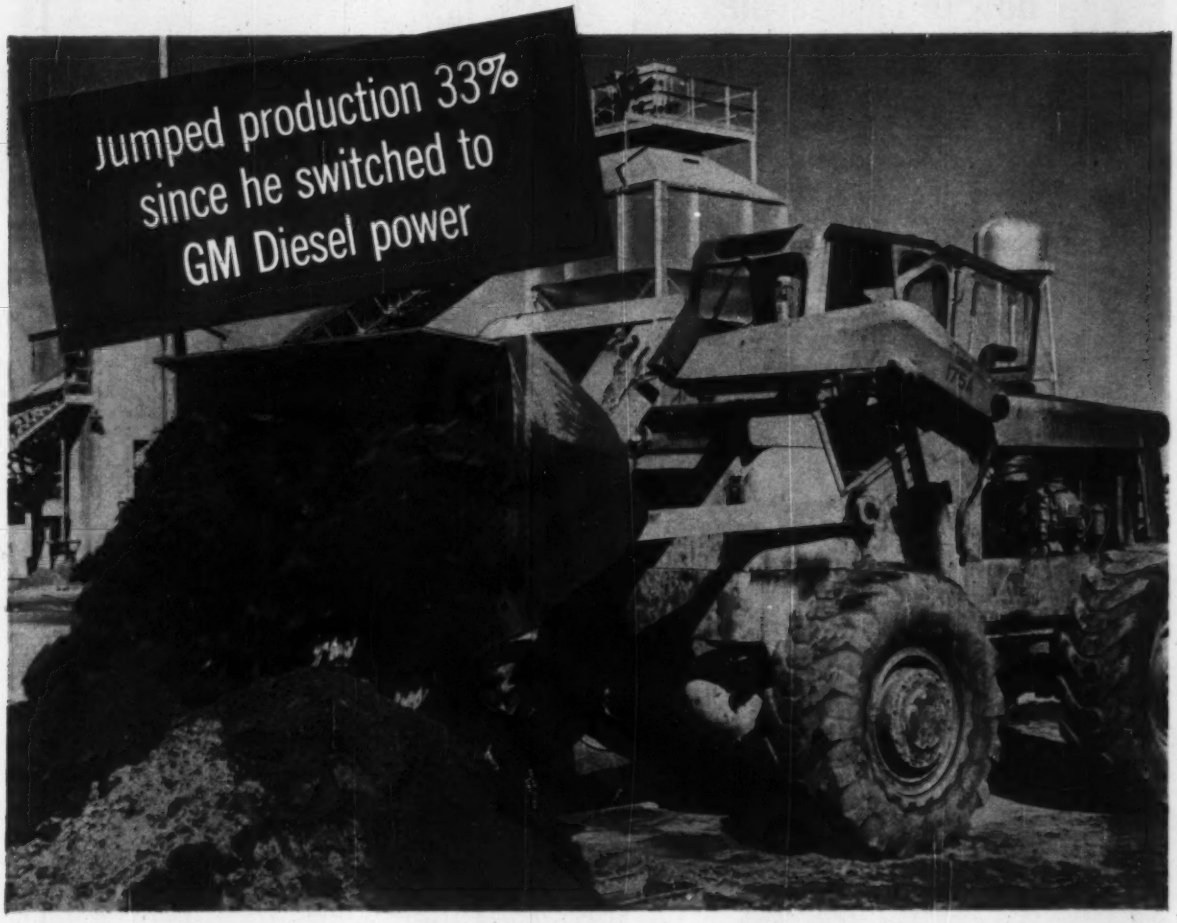
First Class
Permit 10,688
PAID
Section 34.9
P.L. & R.
Detroit, Mich.

5¢ POSTAGE WILL BE PAID BY

GM DIESEL
13400 West Outer Drive
Detroit 28, Michigan

Dept. ENR-4

GET A GM DIESEL ENGINE



33% more ore moved per shift—500 pounds extra per bucket—faster acceleration—better stop-and-go performance.

That's what Homestake and New Mexico Partners of Grants, New Mexico, got when they repowered their 175A Michigan loader with a 4-71 "Jimmy" Diesel.

Operating at 6,500 feet—high up where you can really see the difference in Diesels—the "Jimmy"-powered Michigan now moves 2,000 tons of uranium ore every 8-hour shift—lifts 4 tons per bucket bite.

And Frank Hooper—foreman in charge of automotive equipment for the company—says the GM Diesel has also made the Michigan "a steadier-running, smoother-operating machine."

It's not hard to tell the difference in Diesels—just check the work they put out. You'll see GM Diesels outwork competition time after time, regardless of altitude. Let your GM Diesel distributor show you how much extra profit you'll make from that extra productivity. Call him, he's in the Yellow Pages under "Engines, Diesel"—or mail the postcard today.

POWER LINE

Sets the standard of Diesel productivity

GM DIESEL

DETROIT DIESEL ENGINE DIVISION,
GENERAL MOTORS, DETROIT 28, MICH.

In Canada: GENERAL MOTORS DIESEL LIMITED, London, Ontario
Parts and Service Worldwide

How to choose the right bonding company for every job.
SERVICE: Choose a company which will give you fast, on-the-job service. Ætna Casualty has over 70 supervising offices in key cities—plus thousands of experienced agents from coast to coast.
EXPERIENCE: Choose a company with a trained staff of bonding specialists. Ætna Casualty employs hundreds of experts—men highly skilled in every phase of suretyship—whose knowledge and experience qualify them to handle your bonding needs on jobs of all kinds.
CAPACITY: Choose a company big enough and strong enough to handle any job—no matter how large or small. Ætna Casualty's qualifying limit, as set by the Federal Government, is one of the highest in the industry.
You get all three when you get...
ÆTNA CASUALTY
Quality BONDING Service for contractors in every field
Ætna Casualty and Surety Company • Affiliated with Ætna Life Insurance Company • Standard Fire Insurance Company • Hartford 15, Conn.

Build proof of quality

at no extra cost into buildings of every kind with Crane plumbing

Most people recognize Crane as quality, luxury plumbing. They believe it costs more and is worth it.

The fact is—Crane costs *no* more than comparable plumbing which lacks Crane's outstanding reputation.

So without adding to costs, you can add *proof of quality* to commercial plumbing installations. Crane symbolizes quality of workmanship as well as material. It becomes proof of quality for your entire installation.

Crane offers the broadest line of fixtures for schools, hospitals, industrial plants, institutions and all other commercial buildings. Crane prices cover the full range. Your Crane Distributor will show you and help you.

Crane's wide choice of fixtures lets you plan installations that are exactly right for the need, as this industrial shower room and washroom shows.

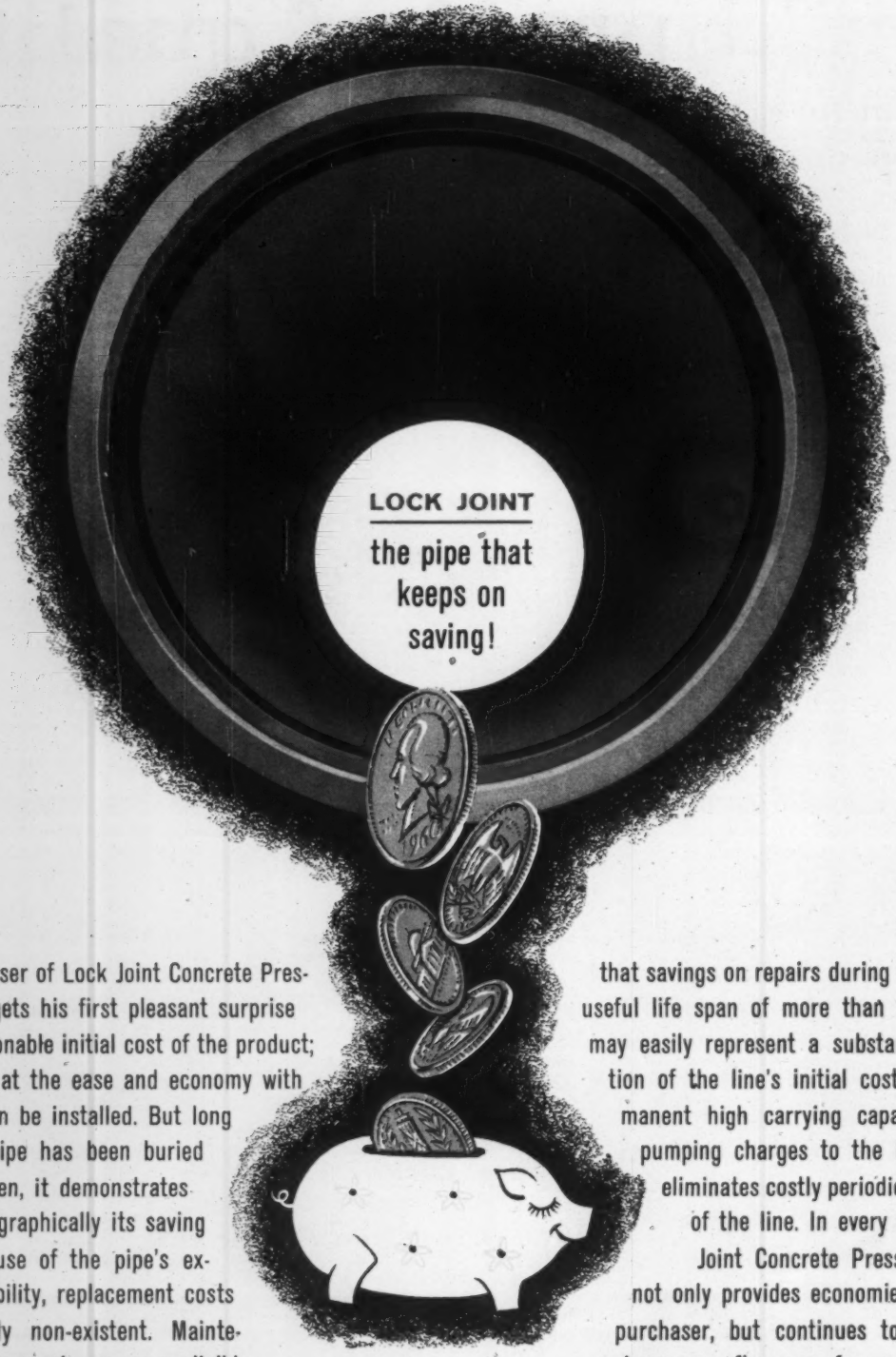
Layout below shows a washroom where everything is off the floor for easy care and complete sanitation. Crane plumbing for commercial use is made to withstand heavy service, constant cleansing.

CRANE®

proof of quality—at no extra cost

PLUMBING-HEATING-AIR CONDITIONING GROUP • P. O. BOX 780, JOHNSTOWN, PA.

VALVES • ELECTRONIC CONTROLS • PIPING • PLUMBING • HEATING • AIR CONDITIONING



The purchaser of Lock Joint Concrete Pressure Pipe gets his first pleasant surprise at the reasonable initial cost of the product; his second at the ease and economy with which it can be installed. But long after the pipe has been buried and forgotten, it demonstrates even more graphically its saving ways. Because of the pipe's extreme durability, replacement costs are virtually non-existent. Maintenance requirements are so negligible that savings on repairs during the pipe's useful life span of more than 100 years may easily represent a substantial portion of the line's initial cost. Its permanent high carrying capacity cuts pumping charges to the bone and eliminates costly periodic cleaning of the line. In every way Lock Joint Concrete Pressure Pipe not only provides economies for the purchaser, but continues to pile up savings year after year, for generations.

LOCK JOINT
MADE ITS WAY
KNOWN ITS MADE
CONCRETE PIPE

LOCK JOINT PIPE CO.

East Orange, New Jersey

Sales Offices: Chicago, Ill. • Columbia, S. C. • Denver, Col. • Detroit, Mich. • Hartford, Conn.
Kansas City, Kan. • Perryman, Md. • St. Paul, Minn. • Winter Park, Fla.

Pressure • Water • Sewer • REINFORCED CONCRETE PIPE • Culvert • Subaqueous

ENGINEERING NEWS-RECORD

Vol. 165, No. 2 July 14, 1960

Number of copies printed in this issue 86,358

CONTENTS

Construction Reaches for a Record..... 27
Validivia Evacuated..... 29
Forms Rotate for ICBM Shelters..... 29
Minuteman Base Strength Tripled..... 29
Road Officials React to Critics on Controls..... 30
No Change Now in CE Teaching..... 32
Long Railroad Starts in Canada..... 32
Reclamation Sees 40 Busy Years..... 33
Precast Garage Will Go Up Fast..... 34

FEATURES

Modern Methods in an Ancient Design..... 39
Highway Burrows Beneath Subway Tracks..... 42

INTERNATIONAL

British Open Kent Lift Bridge..... 49
Building Homes in a Hurry..... 53
Hangar Girders Span 160 Ft..... 54
Bridges in Technicolor, Yet..... 54

FIELD AND OFFICE

Minnesota Simplifies Roadway Plans..... 57
Lifting Precast Concrete Slabs..... 58

RESEARCH AND DEVELOPMENT

A-Power Looks Cheapest for Military Sites..... 62

NEW PRODUCTS

Soundproofing Panel is Rigid, Stable..... 67
Post Clamp Wherever Needed..... 67

MEN AND JOBS

Morrison-Knudsen Gets New Head..... 83
Chief Engineer for Maryland Roads..... 84
Corps Picks Three Division Heads..... 84

BUSINESS AND FINANCE

Bankers Also Bid for Work—Then Sweat..... 124
FHA Lax on Capehart, GAO Says..... 125
Maryland to Get a Levitt Project..... 125
Check Subs on Tax Withholding..... 126
May Equipment Orders Improve..... 126
Floating Bridge in More Hot Water..... 131

LABOR

'60 Wage Boosts Average 14.6 Cents..... 132
Labor Board Halts Burt Boycott..... 134
Prevailing Wage Board Set Up..... 134
Brown-Olds Rejected..... 134
Major Strikes Still Unsettled..... 137

Reader Comment ... 7
Calendar 10
Washington Observer 25
Obituaries 86
Legal 93
Unit Prices 94
Materials Prices 97
Construction Reports. 101
Statistics, Indexes... 123
Editorials 146

Picture Credits

Cover, 39—Bethlehem Steel; 29—Kaiser Steel; 34—bottom, Able Photo Service; 43—left, John W. Woodlyn; 49—Derby Aerosurvey Limited; 53—Photolac; 58—Modern Photographic Enterprise; 83—left, Karsh; 84—Sussman-Ochs; 86—© Gittings; 124, 125—ENR.

Back issues of ENGINEERING NEWS-RECORD *are generally available for the previous six months. Semi-annual indexes will be sent on request.* ENGINEERING NEWS-RECORD *is also indexed in Industrial Arts Index and Engineering Index.*

THE CONSTRUCTION WEEK

RED INK FLOWS LIKE BLOOD—Contractor failures in June remained high at 213, a 28% boost over June '59, Dun & Bradstreet reports. And the first half total of 1,276 is 22% more than last year, the greatest failures count since monthly figures became available 26 years ago. General building contractors were hit hard—a 36% increase in the first half to 490.

A $6-MILLION OVERSIGHT—A technicality cost J. Rich Steers of New York a $6-million job last week. Steers submitted a low bid of $6.1 million for sand drain work on New Jersey's Cross Bergen Expressway—but it wasn't even read. Mr. Steers forgot to attach a letter saying his financial position hadn't changed since April 30, when his financial statement won him unlimited prequalification. Apparent low bidder: George M. Brewster & Sons, Bogota, N. J. at $6.8 million.

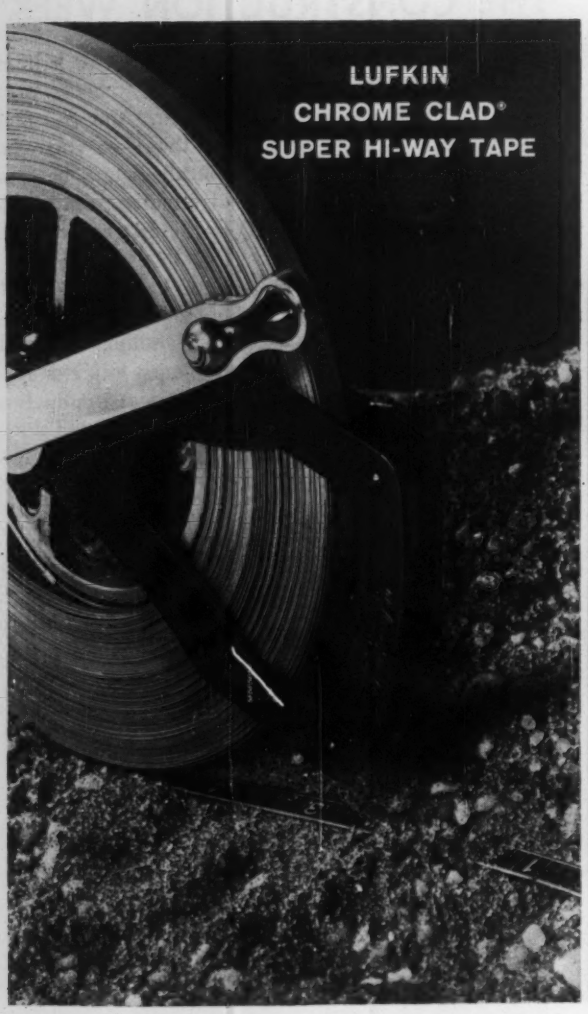
PERU WANTS UTILITIES BIDS—Construction and financing of water and sewerage systems for 80 Peruvian towns and cities are open for international bidding between now and October 24, bid opening date. Specifications can be obtained from the Secretary General, National Development Fund, Avenida Uruguay 514, Lima, Peru. Total cost: $5 million.

POLITICS, NOT BAD ROCK—Construction of $200-million Carillon hydro project on Quebec's Ottawa River, shutdown recently, has been resumed. First reason for the shutdown: defective rock in the river bed. Later explanation: The Liberal Party, just elected to office after 16 years, wanted to get its bearings on this and other projects in the province.

RAISE FOR U. S. ENGINEERS—About 20,000 construction engineers are among the federal employees whose pay envelopes this month are fatter by 7% as a result of a pay boost voted by Congress over President's veto. Most of them are in the GS-11 pay bracket, which increases from $7,030 to $7,560.

FISHING FOR TROUBLE—A TV camera is searching out the latest troubles in Washington's trouble-plagued Hood Canal floating bridge. In addition to other problems (see p. 131) there is some suspicion that the 500-ton anchors holding the pontoons in place may have been undermined by tidal currents.

EXTRA CHARGE FOR TRUNKS?—Mackinac Bridge Authority accountants are staying awake nights counting elephants. A touring circus will cross the bridge next week and they're trying to figure out what to charge for the elephants. "Our toll charges are listed in terms of the number of axles a vehicle has," says Authority Chairman Prentiss M. Brown. "I don't know what the charge for an elephant is and, at the moment, I don't know how to figure it out."



Exclusive LUFKIN Chrome Clad® lines defy sand, mud, grit, and years of use!

Engineers and construction workers swear by 'em. Because the bold, black markings are *bonded* to steel . . . protected by layer on layer of electroplating . . . topped by a final coat of chromium!

Exclusive quality features are yours in *all* Lufkin tapes. For example:

Lufkin Super Hi-Way (above, left) is built to *last.* A real drag tape. Raised markings and protective borders are part of the tape! Can't come off! And special steel resists kinking. Available in 100′, 200′ and 300′ lengths.

50-ft. Anchor Chrome Clad (above, right) is available with easy-to-read markings in feet, tenths and hundredths, in genuine-leather, hand-stitched case. The handiest thing you can carry, on job after job.

See your Engineering Supply House now . . . for the Lufkin tape that's designed for *your* kind of work.

Measure for measure, the finest made..

LUFKIN

SAGINAW, MICHIGAN

WASHINGTON OBSERVER

- **Another lump of road money coming**
- **Who should do what on bases?**
- **Homebuilders predict decline**
- **U.S. construction spending an issue**

● **States stand a good chance of getting in January all of the $1.4 billion of highway money due them for the second half of fiscal year 1961.**

That's the private prediction of Highway Administrator Bertram D. Tallamy. This would follow the changed procedure Secretary of Commerce Mueller put into effect for the first half of the year, which allows states to contract all their six months allocation as swiftly as they can instead of in equal quarterly amounts.

Incidentally, Mr. Tallamy says he will be available to stay on as Highway Administrator in the new administration, regardless of whether it is Republican or Democratic.

—

● **Secretary of Defense Gates has met with Corps of Engineers and Air Force brass to get lagging missile base construction back on schedule.** Mr. Gates says 11 bases are five to six months behind schedule. Work stoppages have been a factor; they have resulted from controversy over which labor unions are to do disputed jobs.

Labor Department is circulating a draft of a ruling to spell out under the Davis-Bacon law what work would be done by building trades and which by the machinists, electrical workers and others under their contract with the missile makers.

The construction contractors have been working with the Air Force to get work now being done by the missile makers. Air Force officials hope that the ruling can be approved and put in use within a month. The general contractors and specialty contractors have already had two meetings with Air Force officials, and a third one is to be scheduled soon.

—

● **The National Association of Home Builders has completed its annual spring survey of builders on the outlook for the rest of the year. They forecast a 10% decline** over-all in home construction from last year.

The bulk of the decline will center in FHA-VA markets. The builders say they are abandoning VA due to high discounts.

—

● **Public works spending will be a big domestic campaign issue**—ranking right along with farm policy and taxes and labor. That is the conclusion you draw from the platform the Democrats wrote in Los Angeles this week. In almost every plank, though the language is traditionally vague, the Democrats go farther than the Republican party is expected to go when it adopts a platform at its convention.

The Democrats want:

A step-up in highway construction.

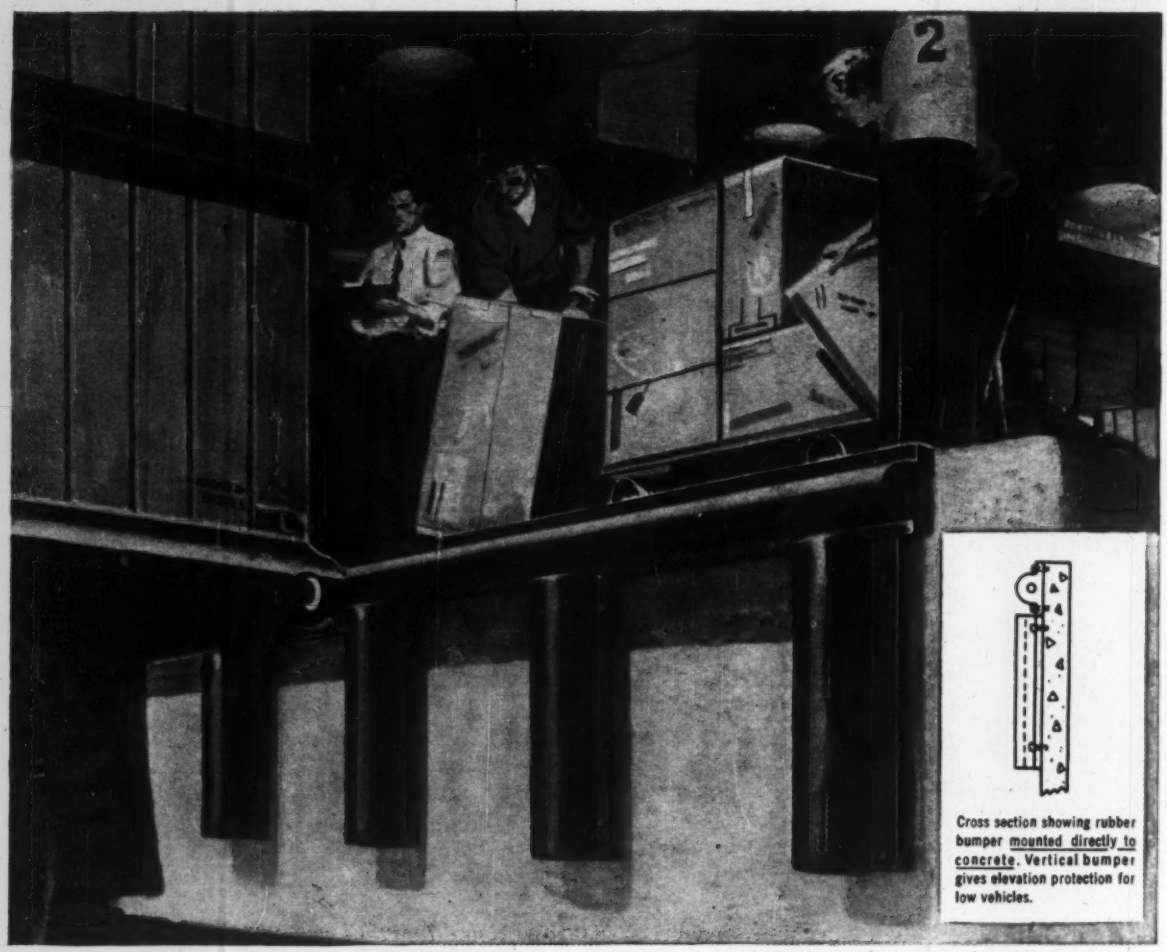
More federal aid for hospitals.

More money for housing, urban renewal, and for depressed areas.

A reliance on Washington to complete river development in the Northwest.

Democratic platform writers acknowledge the possibility of a tax increase to pay for the programs they advocate. But they argue the work needs to be done.

TRUCK DOCK FENDERS



Cross section showing rubber bumper mounted directly to concrete. Vertical bumper gives elevation protection for low vehicles.

How to stop being a rail splitter

Give up using wood timbers across the face of truck depots. You'll not only stop being a rail splitter, but you'll stop denting the trucks.

A case in point: Recently a new truck terminal was equipped with the usual wood timbers across the face of the dock. Within the following week, the wood timbers were splintered and bruised by trucks backing against the dock.

Then U. S. Rubber Truck Dock Fenders were installed. These fenders have been on the job for over six months so far and they have prevented any damage to the dock or the trucks. They have a neat appearance (no ragged, splintered look), are easily installed, will withstand batterings from battalions of trucks.

. . .

When you think of rubber, think of your "U. S." Distributor. He's your best on-the-spot source of technical aid, quick delivery and quality industrial rubber products.

Mechanical Goods Division

United States Rubber

WORLD'S LARGEST MANUFACTURER OF INDUSTRIAL RUBBER PRODUCTS

Rockefeller Center, New York 20, N.Y. In Canada: Dominion Rubber Company, Ltd.

Construction Reaches for a Record

With total new heavy construction in the first half up 9% over last year, contractors can look forward to a continued boom in contracts during the next six months.

To $11.4 billion already on their books (equaling 1956's record for January-June) contractors should add $11.3 billion during the July-December months. This would lift total 1960 contracts in 50 states to a record $22.7 billion, 11% more than last year and nearly $800 million more than ENR forecast earlier (ENR Jan. 28, p. 55).

The outlook is for a bigger second half than the first six months volume of highways, industrial plants, commercial and public nonresidential building, sewerage and earthwork-dams-waterways construction. Though the second half will probably see lower volume than the first half totals for private mass housing, pipelines and missile bases, contractors have already signed up so much of these types of work in 1960 that they will wind up the year far ahead of 1959 volume in these categories.

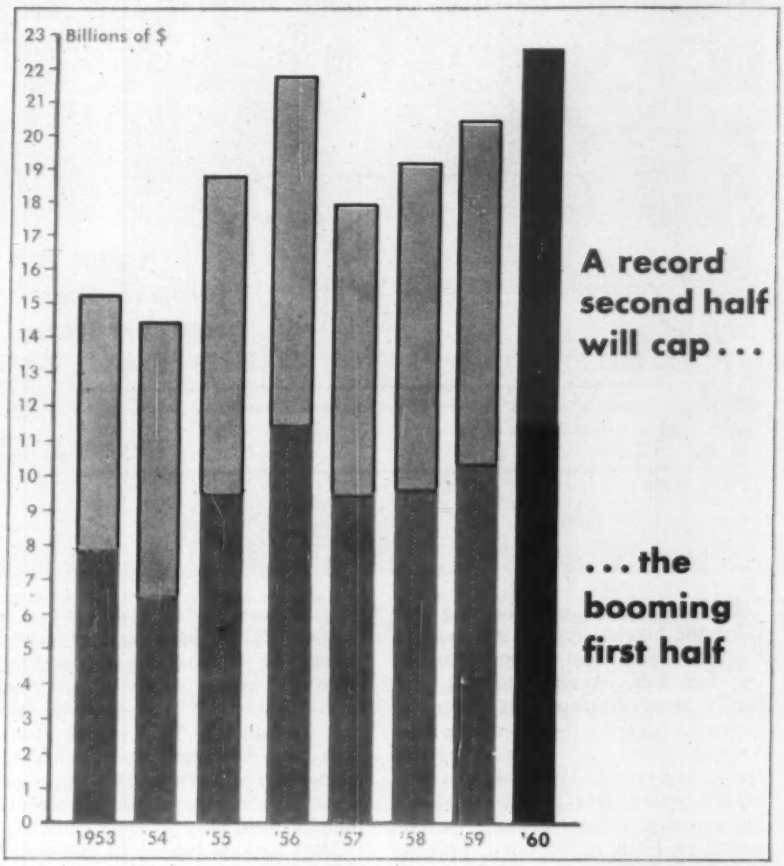
The first half flow of new business, particularly in the second quarter, was notable for a couple of pleasant surprises and a pair of disappointments for contractors and their suppliers.

Private mass housing zoomed to the highest six-month volume since 1955's record, while natural gas pipeline contracts soared to $289 million—exceeding the 12-month totals of each year since 1955 and four and one-half times the volume signed up in the first half of 1959. Missile base construction awards rocketed to $341 million, nearly equaling the 12-month record of $355 million let in 1959.

Though highways and industrial building awards perked up as expected in the second quarter, volume was less than anticipated. Highway and bridge contracts combined fell 11% short of ENR's prediction of $100 million per week for the April-June quarter (ENR Apr. 28, p. 34).

Two factors contributed to highway volume's departure from form:

- Sharp price competition for new highway jobs let in the quarter could have pulled average contract prices far enough under engineering estimates to save contracting agencies a few cents per dollar of scheduled lettings.
- The Bureau of Public Roads was several weeks late in getting its fiscal 1961 federal highway aid obligation schedule out of the state highway departments. This probably prevented some highway departments from scheduling bid calls in the second quarter for projects that would be financed partly by fiscal '61 federal aid available for obligation starting July.

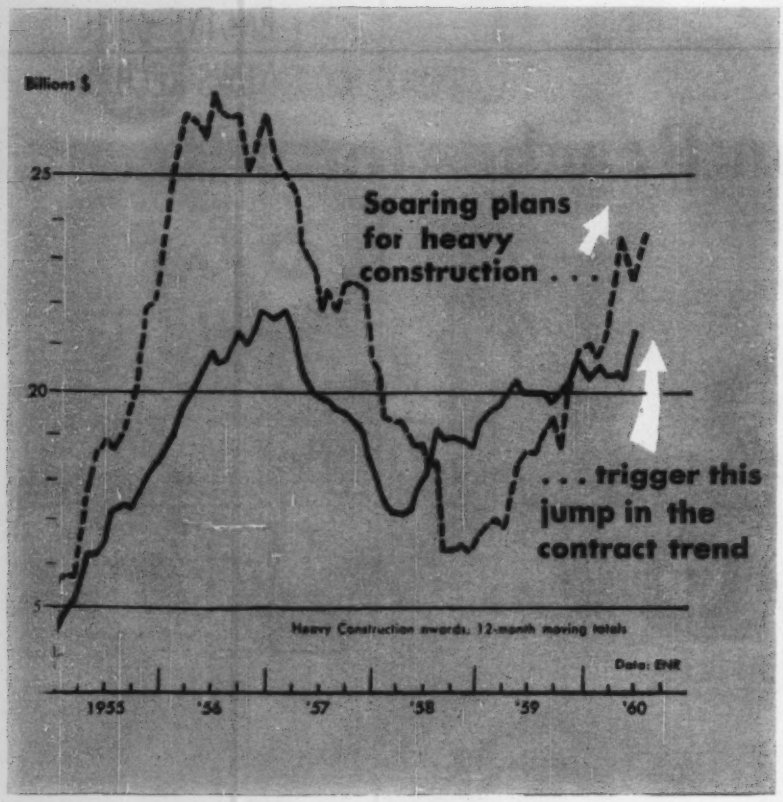


What was the second quarter's loss will probably be the third quarter's gain. July-September highway awards should be about as large as the second quarter, possibly larger. An increase is possible not only because of savings in contract costs during the second quarter and some accumulation of unused federal aid for fiscal 1960, but because some states may follow Commerce Secretary Frederick Mueller's suggestion that they obligate as much of the July-December federal aid schedule as they wish during the July-September period.

Industrial building contracts rebounded in the second quarter. This reflected the upsurge in new projects going on the drawing boards after the steel strike ended. But while the second quarter upturn was ragged, performance should be more impressive in the second half as the bulk of the projects recently proposed move through the planning stage to construction contract. July is off to a fast start with $166 million in awards reported by ENR in the first two weeks.

Looking back at the first half as a whole, the 6% decline in total industrial building awards is much less than was indicated by the sharp drop in new proposed plants during the summer and fall of 1959, when the steel strike apparently discouraged the initiation of new plans. What seems to have happened is that some projects ready for contract last year were held up by uncertainty over the steel supply and general economic consequences of the steel strike, but they have gone ahead this year. This probably helped to keep industrial builders' new business from falling more sharply early this year.

(Turn the page)



Booming private mass housing provided the biggest surprise and most of the lift to new construction volume in the first half. Apartments and one-family home developments pulled together to bring in the six-month mass housing volume 35% ahead of last year and second only to 1955's all-time high for this period. June private mass housing soared to the highest rate ever reported by ENR as apartment building awards chalked up a record $261 million. Apartment contracts ran up a whopping $765-million total in the first half of '60, very close to the 12-month record of $789 million set in 1950.

Thus mass homebuilders—those handling developments or apartments costing $400,000 or more as reported by ENR—forge a bigger schedule of future operations. By contrast, U. S. Census Bureau estimates show private housing starts in January-May trailing '59 by 18%, or 111,900 units.

To help explain those "contradictory" trends, ENR's analysis shows that mass builders appear to fare better than the homebuilding industry as a whole during market ups and downs, which since World War II relate to shifts in supply of new mortgage capital. When "easier" mortgage money permits a housing sales upturn, mass builders lead the industry upward, and in a downturn due to "tight" money they cut back later than the rest of the industry.

In 1960 to date, mass homebuilders have steamed upward at full tilt. The big builders have been quick to take advantage of some easing in mortgage money in recent months. And some may sense further ease to come later this year and in 1961, which would help them keep sales on schedule for large projects starting now but requiring a year or more to sell and start all units planned.

Mass housing volume in the second half is likely to drop below the booming first half—not that "tighter" mortgage money is probable, but because the first half had too many "hundred-million-dollar" jobs.

Meanwhile, government estimates of housing starts on a seasonally adjusted annual rate basis show signs of halting the 1959-60 decline. May's annual rate of over 1.3 million units was practically unchanged from April. And while far below the April '59 peak of 1.6 million, May was only a little under the earlier months of 1960 (other than March, which was snowbound or flooded under).

If housing starts turn upward, they won't show as big an increase as would total dollars spent for home construction because builders are erecting more expensive houses. Average construction cost of one-family houses started in January and February averaged $13,600 to $13,650, respectively. Those averages were up 9.3% and 11% over the corresponding months a year ago, according to Census figures. Average cost of all 1959 one-family starts rose 3.8% above '58 to a record $13,445.

Commercial building contracts finished the half by setting a 42-month high in June and pulling the 1960 total slightly ahead of '59. The second half should top the first half volume and total 1960 awards will probably exceed last year's record by more than 10%.

But public nonresidential building fell off as federal building contracts plummeted in the first six months to only $248 million, compared with $427 million in the first half of '59 and $365 million in the second half of '59. However, most of the gap between the first half of '60 and first half of '59 is accounted for by one project let in May '59—$100-million production reactor at the AEC's Hanford Works, Richland, Wash., awarded to Kaiser Engineers. To date in 1960, federal atomic energy plant contracts are only a small fraction of the year-ago volume. However, Tennessee Valley Authority power plant awards are up this year and should continue strong. Moreover, contractors can count on more starts in fiscal '61 for federal office buildings, many of which may come up for bids in the next six months (ENR June 30, p. 71).

By contrast, state and local nonresidential building increased steadily in the first six months to a total of $965 million. This is only 1.6% above a year ago but it is 12% more than the second half of last year.

Thus 1960 is reversing the 1959 recession in state and local government building awards, as predicted by ENR (ENR Apr. 7, p. 21).

Waterworks started slow but spurted in the second quarter, lifting the six-month volume 8% above '59. Sewerage, on the other hand, started strong but weakened in the second quarter. Earthwork-dams-waterways rebounded sharply in the second quarter and ended the first half only 1% off the 1959 pace. All three types of work should wind up the year above 1959.

While total heavy construction awards reported by ENR pulled 9% ahead of the first half of '59, Census Bureau estimates of new construction put in place lag 3% behind the year ago total. The government figures are down mainly because of what is already history for contractors' new business—contracts reported by ENR. The sharpest declines are in public housing, 36%; military construction, 33% (the missile boom doesn't offset cutbacks in other types); and highways, 11%. New housing put in place is off 10% (Census data do not yet reflect the revised series of housing starts of January '59 to date). Big gains in industrial building put in place, up 34%, and more moderate increases in commercial building 7%, and sewerage and waterworks 5%, mirror last year's increases in contracts.

Valdivia Evacuated

Quake-torn Chilean city is threatened by rising lake

The Chilean Army and Navy are racing against time to evacuate the last 40,000 inhabitants of the quake-ravaged city of Valdivia.

The San Pedro River, which flows through Valdivia, is blocked at three points by landslides caused by the violent tremor on May 22. The stream normally carries the waters of Lake Rinihue, 45 miles upstream of the city, to the Pacific Ocean, but the three quake-built earth dams have contained the lake's waters despite desperate efforts of men and machines to open relief spillways.

At last report the lake is 66 ft above normal level and engineers fear the plugs may fail at any time and create a disastrous flood.

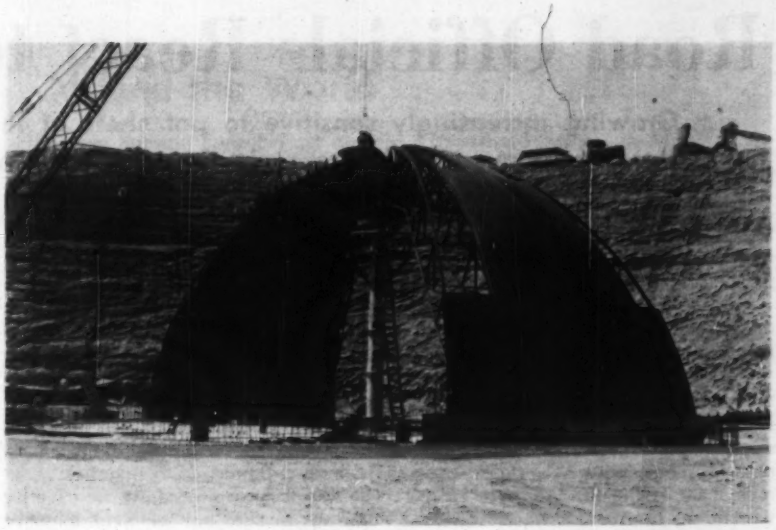
Steady winter rains have hampered engineers' efforts to relieve the flood threat. Soil in the slide area is very poor—a mixture of clay and sand—and bulldozers and tractors have been rendered nearly useless. As many as 400 men are laboring feverishly to carve spillways in the highest of the barriers, but new earth slips and mud slides keep undoing their efforts.

Engineers of the Empresa Nacional de Electricidad (ENDESA) are in charge of what looks like a losing battle against nature. A man-made landslide was created by blasting 25,000 cu yd of earth and rock into the streambed down stream of the quake-caused dams in the hope that it will slow the flood.

Lake Rinihue is the westernmost of five interconnected lakes in the area. Dikes have been constructed on the connecting streams to avoid having the level rise in all the lakes.

Valdivia's plight is similar to that of Ennis, Montana, where an earthquake last summer also built an unwanted earth dam (ENR Aug. 27, 1959, p. 25). The Montana quake dumped 20-million cu yd of hillside into the Madison River and water began rising behind the plug at the rate of 6 to 9 ft a day. Through a rapid-fire mobilization of manpower and equipment the Corps of Engineers managed to build a rock-lined spillway and relieve the flood threat (ENR Sept. 10, 1959, p. 26).

Besides Valdivia several farm villages between the city and the swollen lake are threatened with almost certain annihilation. Early estimates predicted a rise in the river at Valdivia of 3 or 4 ft should the dams let go, but now engineers say the river may crest 25 ft above normal and inundate most of the quake-torn city. Radio communication with the lake is expected to give Valdivia 24 hours warning.



Forms Rotate for ICBM Shelters

Builders of a Titan intercontinental ballistic missile base use movable steel forms to speed up construction of the 110-ft-dia concrete domes that will house underground operating headquarters.

Each form is made up of 15 curved steel plates. Bolted together, these plates form a 45-deg section of a hemisphere supported by a center post. When the inner form is in place, reinforcing steel is installed. The builders then erect a similar outer form and place the concrete.

Peter Kiewit Sons' Co., Omaha, general contractor for the Titan base at Beale Air Force Base, Marysville, Calif., uses two 45-deg sections at a time. This permits placement of concrete for a quarter of a dome.

After concrete has set, the outer forms are lifted off and the inner forms are loosened and rotated on a track to adjacent pouring positions. The steel forms, developed by Berkeley Steel Construction Co., Berkeley, Calif., offer a uniformly smooth surface for the domes.

The completed domes are 55 ft high, with walls that vary in thickness from 30 in. at the base to 14 in. at the top. They will house control centers or power units. A deep layer of earth will cover them as an additional protection against ICBM nuclear bombardment.

The steel forms are designed to be dismantled and used again for construction of dome shelters at other underground missile bases.

Minuteman Base Strength Tripled

The Air Force has tripled the number of reinforced-concrete, underground launching silos it will build for its first Minuteman intercontinental ballistic missile base.

Malmstrom Air Force Base, near Great Falls, Mont., was originally scheduled to have launcing silos for a single Minuteman squadron—55 missiles. Now the base will house three squadrons—165 of the new ICBMs.

Corps of Engineers, contracting agency for the Air Force, began acquiring land in some of the seven counties in which the missile launchers will be installed. First construction contracts for the $60-million base will be let in January (ENR Mar. 31, p. 22).

Construction costs for one 55-missile Minuteman squadron will be about $20 million, as compared with underground launchers for nine Atlas ICBMs that cost some $44 million.

Minuteman launching silos are cheaper to build, because the Minuteman is a solid fuel missile built like a giant Fourth of July rocket. It needs only the flick of a switch to send it soaring into the sky. The Atlas and Titan ICBMs need complicated fuel storage tanks and pumping apparatus to fuel them before firing.

Architect-engineers for the project are Wenzel & Co., Great Falls, and Ralph M. Parsons Co., Los Angeles.

Location of the Malmstrom Minuteman launchers will be: Cascade County, 28; Lewis and Clark County, 11; Chouteau County, 5; Teton County, 19; Fergus County, 57; Judith Basin County, 28; and Wheatland County, 17.

The Air Force also announced plans for construction of an $80-million base for two squadrons of Titan II ICBMs at Little Rock AFB, in central Arkansas.

Road Officials React to Critics on

- **Growing increasingly sensitive to pot shots at the federal road program, state highway officials are reviewing their controls.**
- **By and large, however, they are satisfied with the way their administrative procedures work.**

Under vicious attack by certain elements of the popular press and the target of several investigations by national groups, state highway departments are reviewing and strengthening job control and administrative procedures. Where necessary, state highway officials report to ENR, their departments are taking firm steps to correct weaknesses that could conceivably lead to mismanagement or misconduct.

Many state highway officials are fundamentally satisfied with the procedures they have been using to get the job done. And they believe that misdoings such as those brought out by the Blatnik committee and the extravagant criticisms contained in popular magazines are isolated, non-typical examples.

Yet, even where top officials believe their present operations are satisfactory, they are tightening their controls as never before to protect further the expenditure of public funds and to guard against any possible public or private criticism.

In Georgia the state highway department is setting up a new system of inspecting construction projects, both federal and state. In the past, the department has relied upon resident engineers and inspectors in the field to make checks. As pointed out by State Highway Chairman Jim L. Gillis, the weakness in such a procedure is that discrepancies are sometimes not discovered until final checks are made as projects near completion.

The department is also organizing a laboratory crew of five or six technicians whose sole concern will be adequate tests of all work under way. This crew will be furnished an up-to-the-minute schedule of all jobs, showing the current stage of each. At every stage, checks will be made and samples taken. The crew will be checking three points in particular: proportions of materials; thicknesses of base and paving; and compaction.

This testing out of headquarters will not replace testing by field personnel, but will be supplementary and will serve as a double-check.

In Oregon, W. C. Williams, State Highway Engineer, indicated that some tightening of administrative controls was likely, although no radical changes are contemplated. "Due to changes in federal regulations, it may be necessary to do additional sampling and testing, and to exercise more rigid control within the specifications," he said.

In Maryland the State Roads Commission has engaged the firm of Highway Management Associates of Madison, Wis., to conduct a review of its highway administration practices.

"We feel our procedures are effective and up to date but we want to make doubly sure," said John B. Funk, Chairman-Director.

In Ohio, Department of Highways has "had qualified inspectors doing an efficient job under careful supervision right along," says C. W. McCaughey, Deputy Director of Design and Construction. To aid in this work, however, the department has ordered contractors on every project to refrain from installing steel or other materials until after they have been approved and an inspection report issued. Previously, a contractor could install uninspected materials, which if found faulty had to be removed at his expense.

Every federal-aid project in the state is now posted at BPR's request with signs calling attention to the penalties for collusion or fraud.

In Massachusetts, the Department of Public Works is undergoing comprehensive reorganization accompanied by a bitter exchange of words between Anthony N. DiNatale, present commissioner, and former commissioner John A. Volpe, now a candidate for governor.

The state recently ordered a special survey by Stone and Webster to recommend ways and means of improving the department. The consultants suggested some 500 reforms. DiNatale has announced that 100 of these reforms have been put into effect. Mr. Volpe sharply dissents, claiming that many of these were adopted while he was in office, but were allowed to lapse by the present administration.

Here's the situation in other states with big road programs:

- **Michigan**—Highway Commissioner John C. Mackie states that sampling and testing procedures are basically unchanged, except that cores are taken in the presence of a BPR representative. Training schools for inspectors were started several years ago.
- **Colorado**—Mark U. Watrous, Colorado State Highway Engineer, says, "The department has tightened up on all of our rules and regulations. We augmented this with meetings throughout the state with district, resident, project, construction and materials engineers to go over all the new procedures of the Bureau of Public Roads."
- **Delaware**—Beginning three years ago, the highway department established quality control consultants, who have the sole job of recommending changes in policies and procedures. Chief Engineer Richard A. Haber states, "We are trying through these consultants to obtain closer control from outside, disinterested sources."
- **Tennessee**—The highway department has an adequate testing setup to assure the quality of Interstate and other roads, according to Chief Engineer H. D. Long.
- **New Jersey**—The highway department says it has taken no specific steps to tighten administrative controls on federal-aid work. "We are supervising work on Interstate projects in exactly the same way as we have supervised all highway projects in the past," declared a department spokesman.
- **Pennsylvania**—Fred S. Poorman, deputy secretary in charge of engineering for the Department of Highways says the state is "far ahead" of federal requirements. One reason: Several years ago the department engaged a management consulting firm (Miller and Ward-

Congress Passes ABC Bill After Dropping Riders

Both houses of Congress passed a bill authorizing $925 million for ABC roads for fiscal 1962 and 1963, after jettisoning some excess baggage.

The Senate wanted to include an amendment that would add $200 million over a period of two years for ABC roads in depressed areas and would give Alaska 250 miles of Interstate highways (ENR July 7, p. 23). The amendment didn't include any new revenue for the Highway Trust Fund.

House leaders rejected the amendment, warning the Senate that the additions would draw down a veto. The Senate dropped its insistence on the extras and the bill sailed through just before the two houses adjourned for the two national party conventions.

Controls

man, Haverford, Pa.) to assist in establishing an administrative pattern for efficient control.

Construction inspectors underwent a rigid culling in February when 510 took civil service examinations to hold their jobs; 16 either failed or did not take the test.

Those who failed to pass the examinations are gradually being replaced by qualified applicants.

• **New York**—The State Department of Public Works plans no major changes in administrative procedures. Officials feel they already have an effective system for control of the quality and uniformity of materials.

The main office in Albany periodically reviews the department's materials control system—and all other procedures—as a matter of course. The reviews assure that the system is effective, particularly regarding new requirements or materials, and is efficient in utilization of manpower.

The system involves day-to-day testing and inspection of materials during construction and the testing of completed construction by district inspectors working with the district laboratories.

Materials are also tested by the main office bureau of materials before, during, and after construction.

Two of the country's largest highway departments—Texas and California—not only believe their own procedures and controls to be more than adequate, but are protesting against the additional checks called for by recent BPR directives.

According to Texas State Highway Engineer D. C. Greer, "We've been criticized by some for being too tight on our materials inspection."

The California Department of Highways is not too pleased with the new BPR requirement for final check testing after a job is completed to determine thickness and quality. John P. Murphy, Deputy State Highway Engineer, said the state has had a policy of comprehensive routine testing while work is in progress and it has worked very well.

"We have no serious objection to the check test afterward," Mr. Murphy said, "but it is costly."

Reflecting general awareness of the national situation, the Western Association of State Highway Officials last month urged "all member states to vigorously continue our self-policing program to insure full and complete compliance with plans and specifications on our projects and prompt action on any and all cases of petty theft or dishonesty of any type that our policing operations may bring to light."

Around the World . . .

• **Huge housing project**—First phase of construction on a vast housing development estimated to cost $300 million has begun three miles south of San Francisco. After construction is completed, the 1,900-acre tract will contain 4,000 homes of frame construction, 3,000 apartment units, a 60-acre regional shopping center and two 10-acre neighborhood shopping centers. Callan Park Homes, Inc., is the developer.

• **Streets running red**—Birmingham, England, has a stretch of its highway network paved in red to experiment with a rubber and asphalt mixture. The wearing surface is red rubberized asphalt mixture dressed with ½-in. aggregate coated with asphalt. Engineers there claim it will offer longer wear and less maintenance.

• **Triple purpose**—The New England Division of the Corps of Engineers has come up with its first favorable report on a combined hurricane protection, beach erosion and navigation-improvement project for the Rhode Island shore. The Narragansett plan is the first of its kind in New England since a 1955 law allowing combination of coastal projects. Cost: About $2 million.

• **Traffic's private eye**—The Port of New York Authority will install a television camera on top of the 33-story McGraw-Hill Building. The camera will transmit a picture of traffic conditions at the New York entrances of the Lincoln Tunnel to a traffic control center across the Hudson River in Weehawken, N. J.

• **Reactor for L.A.**—A proposal by Los Angeles and Pasadena, Calif., to operate a 50,000-kw reactor to be constructed by the AEC has received Commission approval. General Electric will supply the $12.5-million boiling-water reactor. The two cities will provide the reactor site and $10 million for conventional turbogenerators and non-nuclear construction. The plant is scheduled to go active in mid-1963.

• **Rails for the Reds**—Communist China plans construction of 5,200 miles of new railway line this year, 500 miles more than the total length of track laid between 1949 and 1958. The year's principal project will be China's first cross-country trunk line and a shorter route to the U.S.S.R.

• **Prestressed ambitions**—More than 160,000 cu yd of prestressed concrete runway and taxiway will be bid in competition with plain and reinforced concrete next year at Fairchild AFB, near Spokane, Wash.

• **Thunder out of Moscow**—The Soviet Union claims it is planning a 12,000-mile monorail line that would carry trains between Moscow and the Caucasus at 360 mph.

• **Hawaii pipeline**—A recently dedicated pipeline, nine miles long, runs from Honolulu to an industrial park at Barber's Point. The 30-in. pipe now services a new oil refinery, and a steel plant, but will eventually get a nine-mile, 24-in. extension to the arid Waianae section of Oahu Island. A 1.5-million gallon reservoir is under construction at the terminus of the new line to feed the future extension.

• **Turnpike modernization** – The Pennsylvania Turnpike Commission has approved construction of a $7-million bypass at Laurel Hill Mountain and a $13-million parallel tube at the Allegheny Tunnel. The two projects are part of a program to improve traffic movement on the turnpike.

• **Suez crossing**—Egyptian Republic Railways and the Suez Canal Authority will call for bids for a $2-million bridge over the Suez Canal to replace the existing Ferdan Bridge. The old bridge will be dismantled as part of a program of widening the canal. The new bridge will be about 1,100 ft long.

• **One step forward**—New York City's $100-million Grand Central City Building came closer to reality last week with the start of demolition of the existing six-story building adjoining Grand Central Station. Razing will take five months.

• **Ohio street fighting**—The Bellefontaine, Ohio, Chamber of Commerce defended the country's oldest stretch of concrete street from the state highway department, which wanted to cover it with asphalt. The street is a half-block section of State Route 47. The street was paved in 1893 and its surface indented so horses wouldn't slip. Some of the concrete is still in excellent condition.

No Change Now in CE Teaching

Civil engineering educators conferred for three days last week on the teaching of future civil engineers (ENR July 7, p. 21) but wound up in a confusion of parliamentary procedure resulting in postponement of any clear-cut conclusion.

The unique conference brought to the University of Michigan delegates from all the nation's accredited civil engineering schools. They came by invitation – and at National Science Foundation expense–to hear discussed and to pass on a definite resolution proposed by a planning committee of 27 leading educators who had conferred twice previously.

The delegates heard plenty of discussion, but they did not pass upon the proposed resolution. Some actually may have gone home thinking they did –at least unofficially; others didn't even stay around to the end to see if they would.

After two days of papers and discussion the conference decided not to approve the planning committee's proposal–or any other resolutions. It was decided that the planning committee's resolution (briefed below) should be printed with the proceedings of the conference, then voted on by letter ballot.

This resolution was lumped for consideration with eight other resolutions proposed during the conference and screened for publication and later balloting.

Professor Felix A. Wallace of The Cooper Union, general chairman of the conference, told ENR that balloting on the resolution could not be accomplished for weeks. It will have to await printing of the proceedings by the American Society of Civil Engineers. ASCE joined with the American Society for Engineering Education and Cooper Union in co-sponsoring the conference; NSF paid the bill with a $43,000 grant.

Official delegates to the conference were urged in vain by non-educators present to bring the planning committee's proposal to a vote.

- C. H. Ax, a St. Louis contractor representing Engineers Joint Council, urged a vote on the resolution.
- W. L. Everitt, Illinois dean, spoke for Engineers Council for Professional Development and told the educators not to pass to ECPD any proposal they hadn't already passed upon themselves.
- A. R. Golze, of the U. S. Bureau of Reclamation and chairman of ASCE's committee on engineering education, pleaded for at least a straw vote to indictate the educators' thinking on the resolution.

But even the unofficial straw vote, which will not appear in the conference proceedings, brought forth a show of hands–not for or against the resolution per se–merely for the resolution as a good general theme for the conference. On this the conferees were unanimous.

Mr. Golze told ENR he took the professors' vote to mean they were in favor of progress.

Cooper Union and its co-sponsors got the NSF grant for this conference with the understanding that the objective would be to evolve recommendations on curricula in civil engineering.

"Formulation of specific recommendations" now awaits balloting on the resolutions.

When the balloting is done and if the planners' proposal is approved, ECPD and EJC are to be advised and urged to support it for "unified action to secure a truly professional educational base" for civil engineers.

Here's the resolution:

"Resolved that this conference favors the growth in universities and colleges of a pre-engineering, undergraduate, degree-eligible program for all engineers, emphasizing humanistic-social studies, mathematics, basic and engineering sciences with at least three-quarters of the program interchangeable among the various engineering curricula, to be followed by a professional or graduate civil engineering curriculum based on the pre-engineering program and leading to the first engineering degree . . . with a civil engineering degree awarded only at the completion of the professional or graduate curriculum."

Long Railroad Starts in Canada

Construction is under way on the longest railroad to be built in North America in the past 30 years–the 700-mile Pacific Northern Railway in the wilderness of British Columbia.

The $250-million rail line will run from Summit Lake, near Prince George, to the Yukon border, near Atlin Lake. It is part of a project sponsored by Swedish industrialist Axel Wenner-Gren to exploit the power, metallurgical and timber potentials available in the area.

Construction under way is only token work to fulfill a legal obligation to begin by June 30. No contract for clearing right-of-way has been awarded yet.

The new railroad company is clearing its 95-acre marshalling yards near Summit Lake, has surveyed its route and is now conducting a precise location survey.

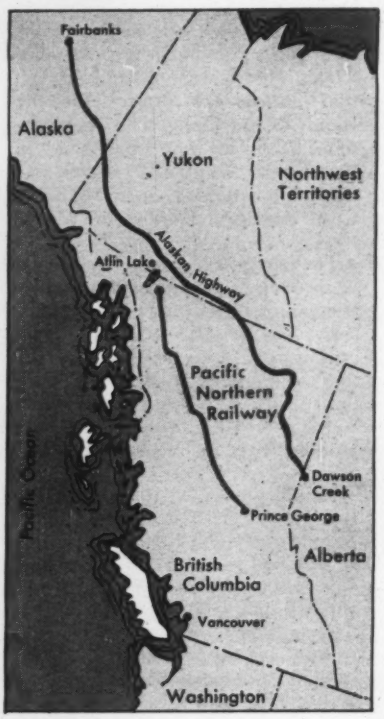
Construction of the railway was part of an agreement made in 1957 by Mr. Wenner-Gren and the provincial government. Wenner-Gren (B. C.) Development Ltd. completed a route survey this spring that included 1,500 miles of aerial reconnaissance and the mapping, by aerial photography, of 340,000 acres of land.

The new line was originally scheduled to run northwest from Prince George through the Rocky Mountain Trench. This route was ruled out because the trench will be flooded for the Peace River power project.

A second phase of the Wenner-Gren plan is the extension of the PNR line 750 miles through the Yukon into Alaska.

Other companies taking part in construction of the Pacific Northern Railway are A. V. Roe (Canada) Ltd., Montreal; Associated Electrical Industries Ltd., Toronto; Cleveland Bridge & Engineering Co. Ltd., Darlington, England, and Perini, Ltd., Toronto.

Col. S. H. Bingham, New York City consulting engineer, directed the survey for the rail route. Associated with him on the job was Minshall & Smith Engineering Ltd., consultants from British Columbia.



Reclamation Sees 40 Busy Years

A $22-billion program of reclamation development in the 17 western states has been outlined to the U. S. Senate by the Bureau of Reclamation. The work includes federal, state, local and private projects. They would be constructed over the next 40 years.

The bureau prepared the report at the direction of Interior Secretary Fred Seaton in response to a request from Sen. Robert S. Kerr (D., Okla.), chairman of the Senate's Select Committee on National Water Resources. The committee is in the last quarter of a two-year study of U. S. water resources needs to the year 2000.

The study covers 1,085 potential projects, of which 650 are considered federal. The non-federal projects include the California State water plan as one project, inventoried separately in the report.

Federal projects would cost $12 billion at 1959 prices, the California development $8.6 billion and other non-federal works $1.4 billion. (The federal figure includes $1.2 billion of projects now under construction.) These estimates do not include the entire cost of the potential projects but only 75% of the total cost of the federal projects and the California water plan and 90% of other non-federal projects.

The bureau judged that the foregoing percentages of the total potential irrigation development are the proportions that can reasonably and economically be carried out in the next 40 years. The figures are influenced by several factors: Competing non-irrigation demands, such as municipal and industrial water supply; the high cost of some potential projects; lack of local support in some cases; involvements such as water-rights disputes.

Non-federal projects (except the California development) are simpler in general than the federal storage projects and are expected, therefore, to develop to the greater percentage of potential by 2000.

Although mainly irrigation works, the projects would serve other purposes where possible; for example, 185 would provide flood control, 163 could supply municipal and industrial water and 46 have hydroelectric power potential.

The data used for the report are rated by the Bureau of Reclamation as "feasibility grade" for about one-fifth of the projects, "reconnaissance grade" for one-fourth, "rough estimates" for another one-fourth and "judgment" for the remainder.

The program would put the equivalent of an additional 17 million new acres of land under irrigation—9.5 million federal and 7.5 million non-federal Answering critics who question the wisdom of placing more land under cultivation in the face of growing crop surpluses, the bureau defends its stand for more farm acreage on several points: The additional needs of a national population expected to double in the next 50 years; loss of farm land by conversion to non-agricultural uses; and the non-surplus nature of most crops grown with the help of federal reclamation works. The bureau says farms getting irrigation water from federal projects produced less than 2% of the four commodities (corn, wheat, cotton and tobacco) that make up 86% of the Commodity Credit Corporation's holdings.

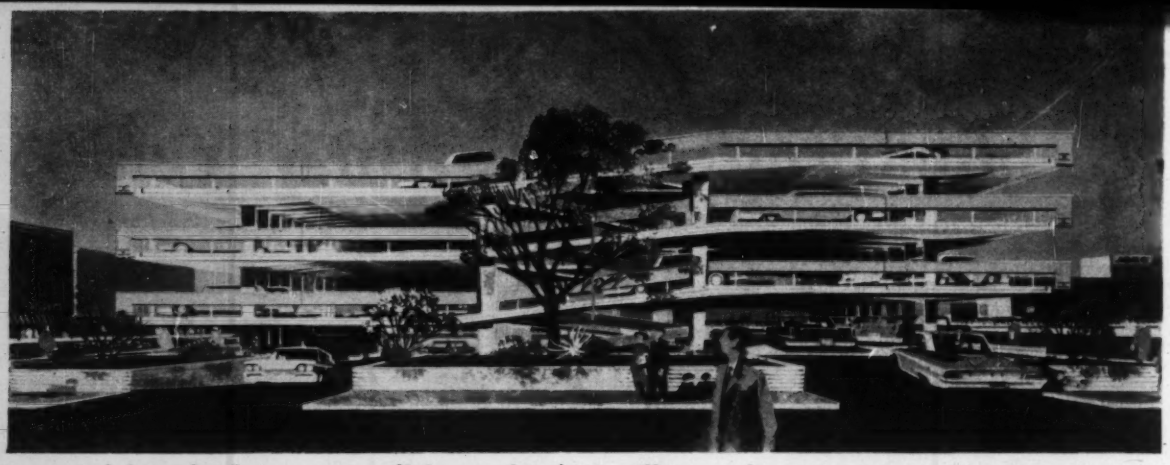
The report points out that U. S. projects in the anticipated program represent a rate of irrigation development two to two and a half times as great on an acreage basis as that achieved during the 1950s.

The bureau believes major problems in carrying out the proposed program will require action in the following areas:

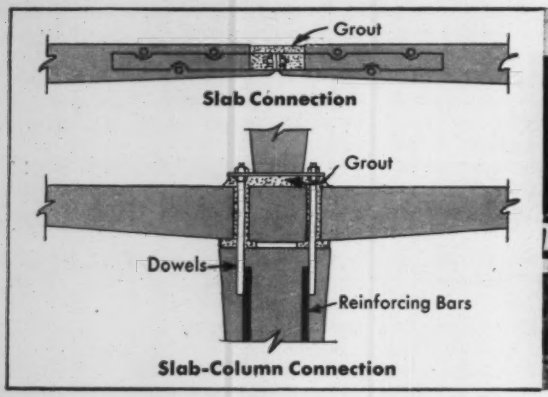
- Water exchanges between holders of present rights and future users able to make better use of the available water.
- Financial assistance to irrigation users in the form of revenues from power production and municipal and industrial water supply.
- Evaluation of the effects on water supplies of the Agriculture Department's watershed-protection and land-treatment programs.
- Cooperation to an unprecedented degree between the federal government and the State of California in carrying out the state's water plan.
- Clarification of federal policy on such items as interest rates, standards of economic analysis, fish and wildlife and recreation facilities at federal projects.
- Possible eastward extension of reclamation law, applicable now only to 17 western states.

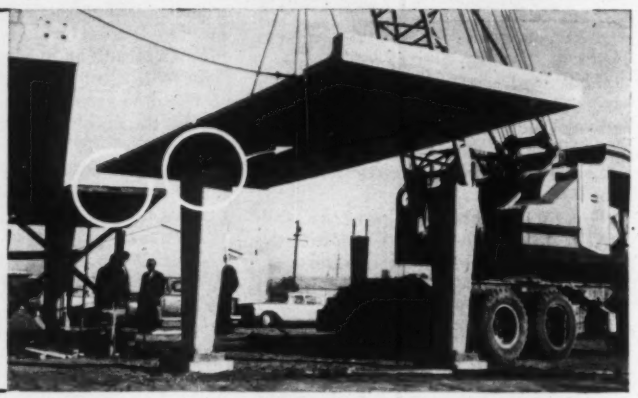
Irrigation projects to 2000 in 17 western states . . .

	Federal Projects				Non-Federal Projects			
Region	Project Cost	New Land Irrigated	Power Capacity	Reservoir Capacity	Project Cost	New Land Irrigated	Power Capacity	Reservoir Capacity
	$ millions	acres	kw	1,000 acre-ft	$ millions	acres	kw	1,000 acre-ft
Upper Rio Grande & Pecos	$186	165,000	.....	1,238	.....	.....	.....	.....
Upper Missouri	2,900	2,740,000	254,000	12,641	$133	603,000	.....	32
Upper Arkansas and Red	840	174,000	124,000	7,494	170	731,000	.....	315
Lower Ark.-Red White	183	52,000	.....	4,029	11	.....	.....	268
Western Gulf	1,050	796,000	142,000	21,659	493	88,000	.....	12,261
Colorado	2,426	1,200,000	1,763,000	35,932	11	69,000	.....	125
Great Basin	420	260,000	125,000	2,479	94	299,000	.....	221
Pacific-Northwest	2,275	2,650,000	750,000	8,334	428	802,000	.....	269
Central Pacific	1,630	1,445,000	1,065,000	8,642	48	84,000	.....	526
South Pacific	90	18,000	.....	600	12	24,000	.....	.....
Calif. state water plan					8,600	4,800,000	2,057,000	56,875
Total	12,000	9,500,000	4,223,000	103,048	10,000	7,500,000	2,057,000	70,892



Precast slab and column units will frame this $1.5-million parking structure in Hempstead, N. Y.





Crane swings tapered slab panel over column. Connection detail is shown at left.

Precast Garage Will Go Up Fast

A new system of building parking structures from factory-made precast column and slab units will be used for the first time in a four-story parking structure in Hempstead, N. Y. It's called TIERPARK.

Factory production of the superstructure elements is now under way; on-site construction, which consists only of cast-in-place footings, will begin in August; and erection of the superstructure is to be completed in September.

Tishman Realty & Construction Co. of New York City will build the garage for Abraham & Strauss department store. It will cost $1.5 million; hold 1,200 cars.

TIERPARK garages are suitable for single or multistory construction. Tishman has set tentative limits of four stories in seismic areas and six stories elsewhere. But these may be increased.

Minimum area for a single-story structure is 60x147 ft; minimum for a multistory structure is 116x147 ft.

The horizontal and vertical range of TIERPARK garages best fits them for suburban areas. Depending on size, they can be built for $1,200 to $1,500 per car, according to Tishman.

Among the advantages cited are easy provision for future addition and easy dismantling. This latter feature adapts the new system to projects like civic centers and exhibitions, where temporary parking demand is high and future demand doubtful.

Conceived by Edgardo Contini, chief engineer, Victor Gruen Associates, Beverly Hills, Calif., the TIERPARK structural system comprises three basic elements: floor slabs, ramp slabs and columns.

A typical slab section is a rectangular section, 10 ft 6 in. wide by 28 ft long. It tapers in two directions, from a 4-in. thickness around its periphery to an 11-in. thickness at its center, where it is supported by a column. The slab is prestressed for two-way cantilever bending.

A ramp slab is 1½ times the width of a typical floor slab. Combined in pairs, two ramp slabs constitute a complete ramp connecting adjacent levels. Each ramp slab is supported by two columns.

Columns are elongated hexagons in cross section and tapered from top to bottom in elevation.

Elimination of beams and girders limits TIERPARK's floor-to-floor height to 8 ft. This helps to cut ramp length, thus limiting the ramp grade to 12.5%.

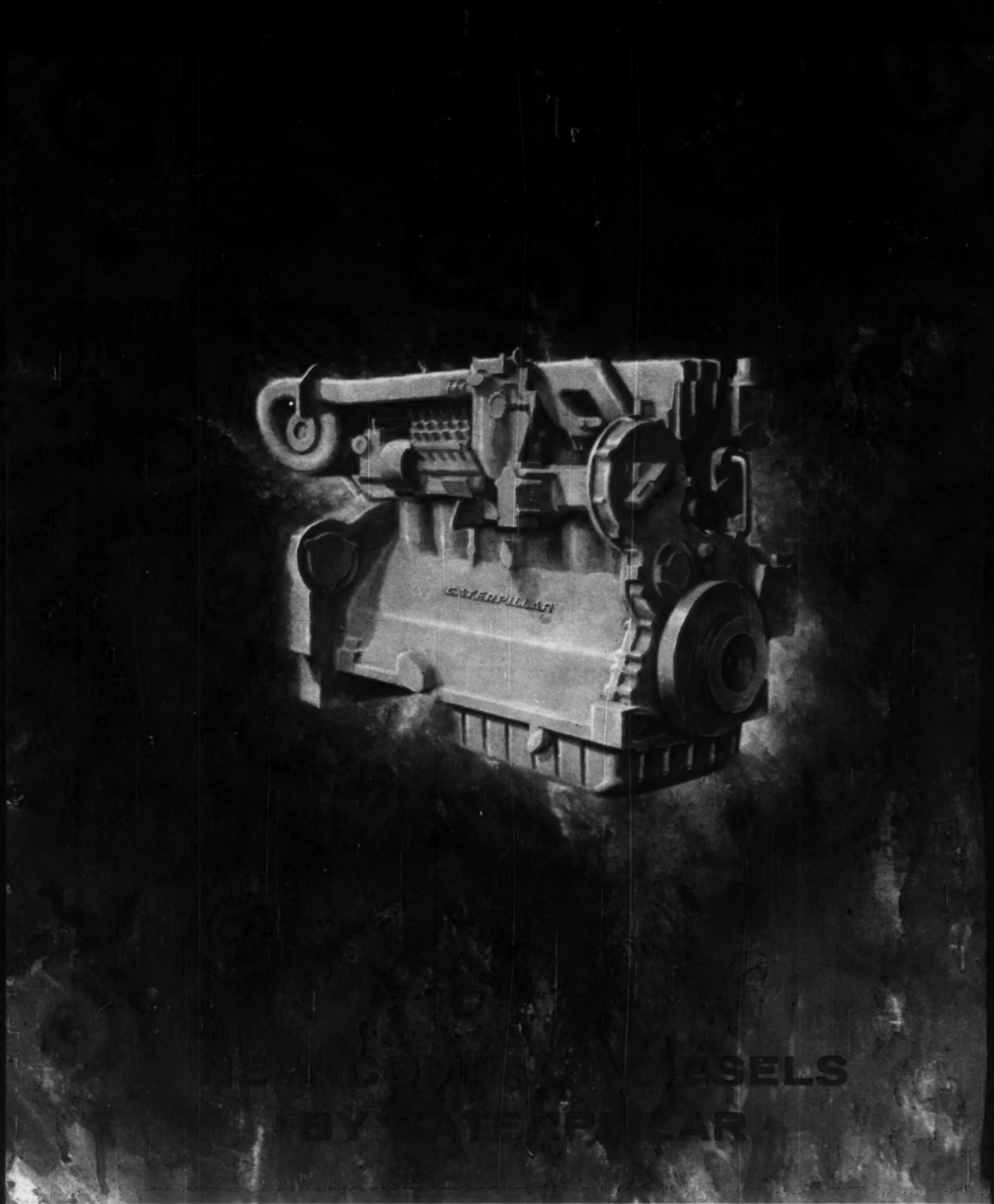
Rigid moment connections at column-slab joints eliminate the need for shear walls or other forms of lateral bracing. These connections are made with four threaded dowels projected through pipe sleeves set in the slab. Grouted in place, the dowels provide moment resistance in the joint and serve as anchor bolts for the base plate of the column above (see sketch).

Adjacent slab panels are bolted together through insert plates and recesses grouted (see sketch).

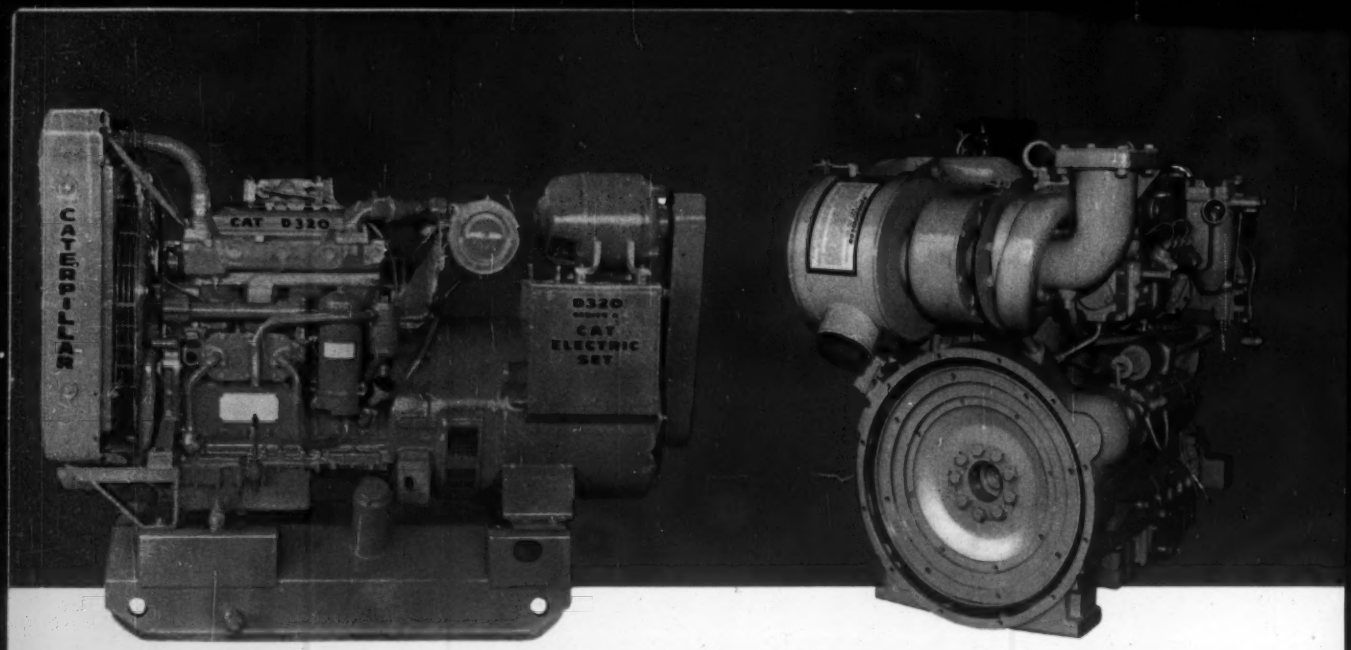
Though the primary structural components of the system are completely standardized, secondary elements (railings, lights and wall panels) can be individually designed.

The parking system is designed for driver parking at an angle with one-way traffic through the building.

Tishman Research Corp., a subsidiary of Tishman Realty and Construction Co., has licensed 75 prestressed concrete plants throughout the country to fabricate TIERPARK components. It has retained Freyssinet Co., Inc., New York City, as quality control consultant. A patent on TIERPARK is pending.



Caterpillar announces a new line of four-cycle diesels that sharply reduces physical dimensions and weight-to-horsepower ratio. Features of durability, fuel economy and dependability, long associated with Caterpillar four-cycle diesels, are still apparent.



D320...130 HP
(Shown as Electric Set*)

D330...180 HP
(Shown as Industrial Engine*)

NEW FROM CATERPILLAR—HIGH OUTPUT, LIGHTWEIGHT, COMPACT DIESEL ENGINES

Since introduction of the first mobile diesel engine in 1931 Caterpillar engineers have been testing materials and methods to reduce diesel size and weight and at the same time develop more horsepower. Three products of this program are the new D320, D330 and D333. Their size, performance and price now offer significant and increased economic return to the user.

Now you can get premium four-cycle performance . . . and what is very important to you . . . at no premium in price.

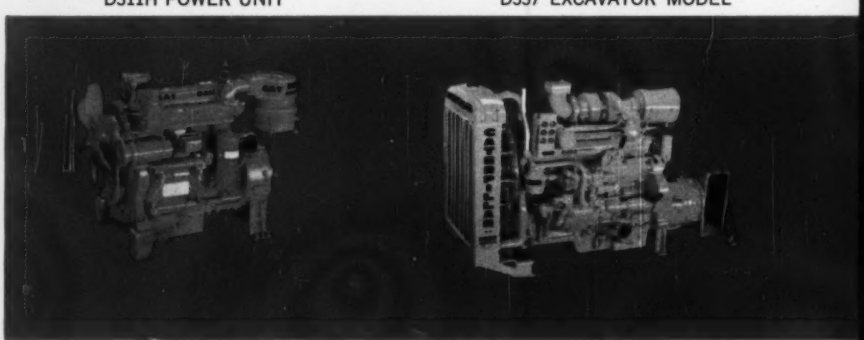
These engines and the rest of the Cat Diesel line are designed for your job or manufacturers' equipment whether it be industrial, electric power generation or marine.

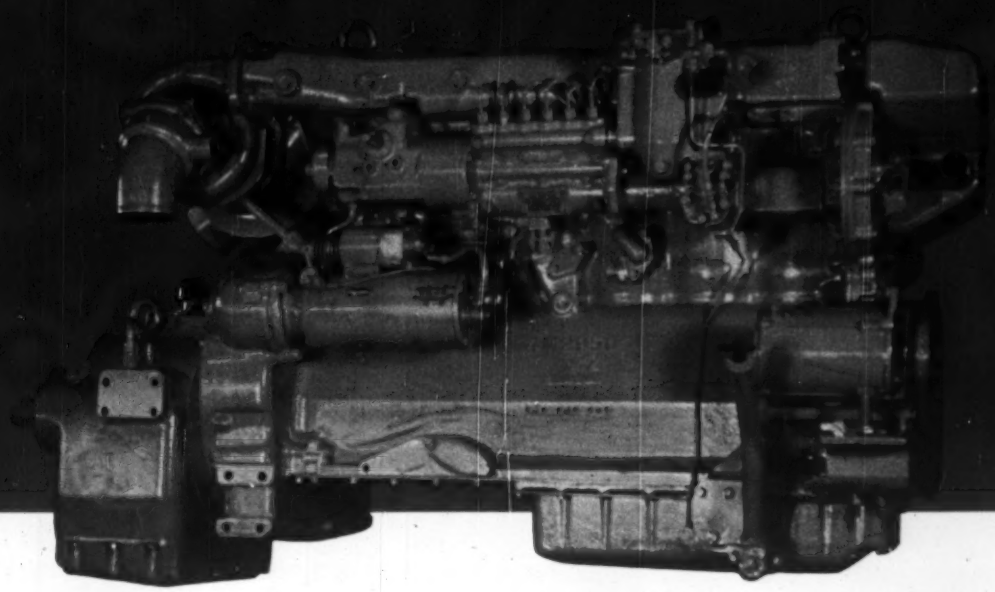
Shown below are more models. Space prevents the illustration of Caterpillar's complete line running to hundreds of configurations.

Caterpillar manufactures a full line of diesel and natural gas engines. Diesels range in horsepower up to 730; output of the largest electric set is 400 KW. Diesels are available in industrial, electric set and marine versions. Caterpillar also manufactures the lowest cost per horsepower natural gas engine on the market today. Hundreds of thousands of Cat Diesel predecessors to the new series have set performance and economy records, the world over.

D311H POWER UNIT

D337 EXCAVATOR MODEL





D333...270 HP
(Shown as Marine Engine*)

*All available in industrial, electric set, or marine configurations. These are maximum usable horsepower ratings with 85° water to aftercooler.

GOOD SERVICE LIFE Valve rotators insure perfect valve seating, give extended valve life. Turbocharging helps keep valve temperature lower. Pistons are spray cooled from underneath and cylinder liners are full length, wet type for better heat transfer. These features and many others such as elliptically shaped pistons and shot peened, fatigue-resistant crankshafts make this series dependable performers.

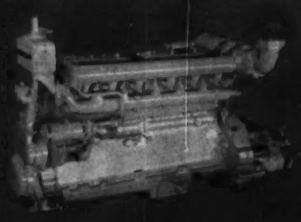
SMOOTH AND QUIET RUNNING All of these engines are smooth running. The four-cylinder D320 and D330 have built-in balancers that remove the roughness characteristic in four-cylinder engines. Turbocharging muffles exhaust noises to a point where mechanical muffling or insulation is not often needed.

ECONOMICAL These engines have a precombustion chamber injection system design which is non-sensitive and lets the engine digest lower-cost, heavier, higher-heat-content fuel. Being able to burn fuel such as commonly available household furnace oil compared to gasoline or premium diesel can save many thousands of dollars in fuel costs over the life of the engine.

DEPENDABLE These engines can idle for extended periods, then accelerate to full load and speed with a clean, clear exhaust. This ability to burn fuel completely over a full range of speed and load is the result of four-cycle design plus the use of a precombustion chamber injection system. It results also in better part load fuel economy.

POWERFUL The specification sheet horsepower is the horsepower you can use. There is no need for derating with a Cat Diesel. In fact, you can request and get a formal horsepower certification with each engine you purchase.

D342 MARINE



G375 NATURAL GAS

D397 ELECTRIC SET

Completed in 1959, the new Mossville, Illinois, Industrial Engine Plant manufactures Cat Engines on a mass-production basis.

Partially complete, Caterpillar's new Technical Center provides an appropriate research atmosphere and ultra-modern facilities. Two of these buildings are devoted to prime power research.

Basic in-line Diesel and Natural Gas Engines are also machined and assembled in this modern Peoria, Illinois, plant, completed in 1948. Another large plant (San Leandro, Calif.) manufactures fuel injection components.

FROM POWER CITY COMES MODERN DIESEL AND NATURAL GAS ENGINES PLUS DIESEL ELECTRIC SETS FOR EVERY POWER USE

The present diesel and natural gas engine line, the facilities and the manpower are all dedicated to give you the best diesel engine value on the market today.

We offer this value in new engines and the constantly improved diesel industry standards such as the D397 and D342. This value results from assembly line, mass-production economies, precision manufacture, 100% inspection, excellent metallurgical quality, modern, compact design, more than thirty years of diesel experience and a constant intent to offer engines at an economical price per unit of horsepower.

Whatever your diesel or gas engine needs may be, you can expect Cat to offer the most for a reasonable price, low operating cost and a low final cost.

Specify Cat and be sure of satisfaction.

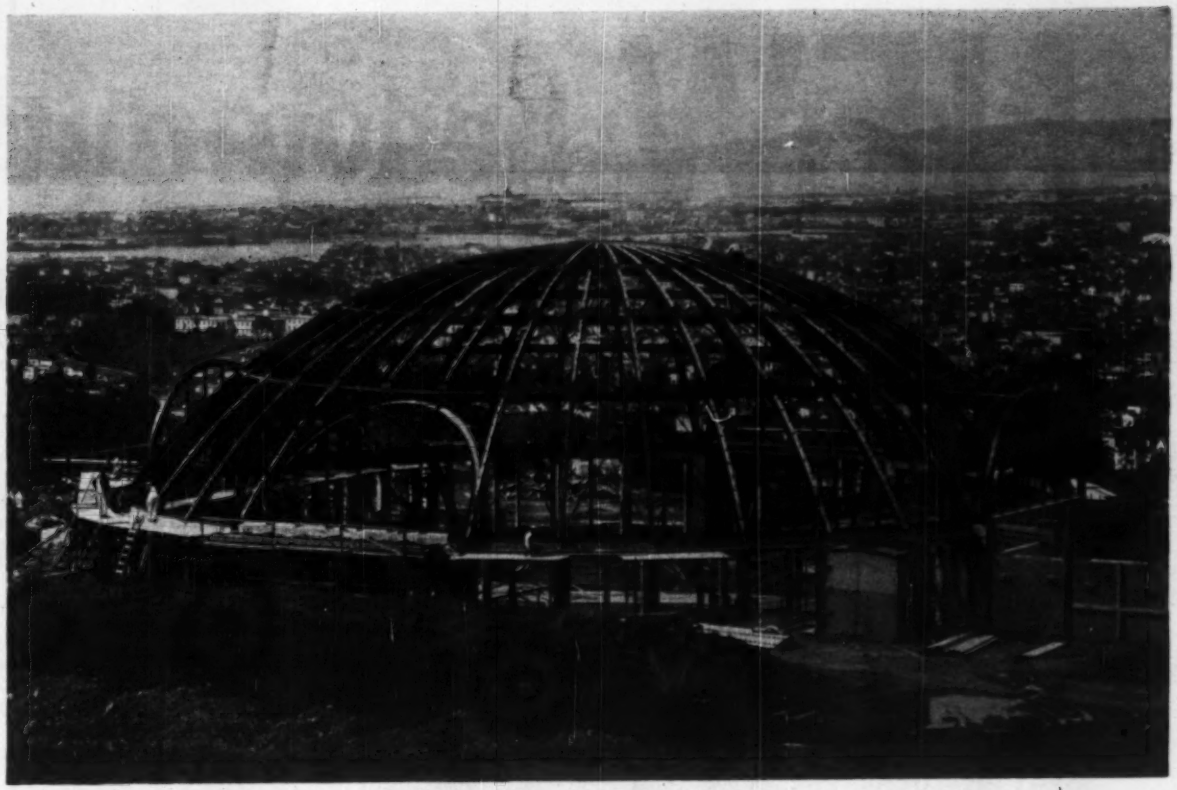
CATERPILLAR

Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

Engine Division, Caterpillar Tractor Co., Peoria, Illinois, U.S.A.

engine power
BY CATERPILLAR

Printed in U.S.A.



Builders of a traditional Greek Orthodox Church use . . .

Modern Methods in an Ancient Design

Curving steel beams intersect like a giant spiderweb to form the 122-ft-dia dome framework of a Greek Othodox church in Oakland, Calif. The builder used modern construction techniques to duplicate the traditional form of the Greek church—for centuries built of stone.

The dome consists of 36 arched, 12 WF 27 sections, bent in the shop to a 74-ft radius. The uppermost ribs connect to an 8-ft-dia compression ring covered with ¾-in.-thick steel.

An 8-ft-sq falsework tower was set in the center of the building to support the compression ring. Ribs were erected in opposing pairs to keep the load balanced.

The bottoms of the ribs, spaced at 10 deg. intervals are anchored at the top of a concrete perimeter wall to cord sections composed of 9 WF 48 sections split along the web to form a tee. These chord sections are welded end to end forming a solid ring with a 122-ft dia.

The dome ribs were fabricated in two sections and welded together at the site. All other connections were made with high strength bolts. The entire frame is braced with 1¾-in. and 1¼-in.-dia. diagonal rods.

The outside of the dome will be covered with copper sheeting; the inside with gold anodized aluminum perforated for accoustical treatment.

Four arched dormers are located at equal intervals around the dome. They are framed with 12 WF 40 sections bent 180 deg. in a 15-ft radius, and will contain colored glass windows shaded with a ceramic screen.

Three 30 WF 108 sections support a choir loft above the main entrance. These beams are topped with 4½-in. steel decking, forming the choir loft floor.

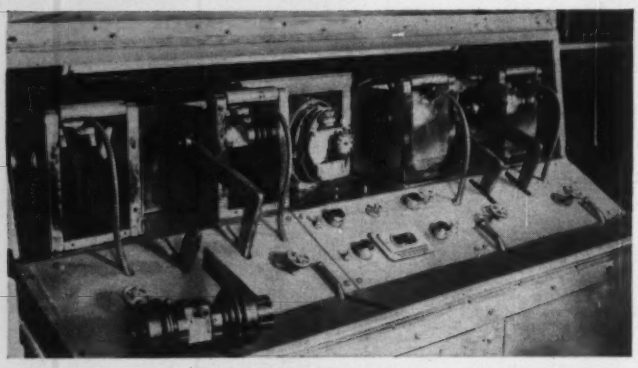
Opposite the choir loft is an apse screen consisting of an elliptical section having the same curvature as the roof. The screen is framed with 11 curved 12 WF 27 sections standing on end and forms a background and acoustical reflector for the services.

Cost of the structure is $500,000. It will contain 115 tons of structural steel.

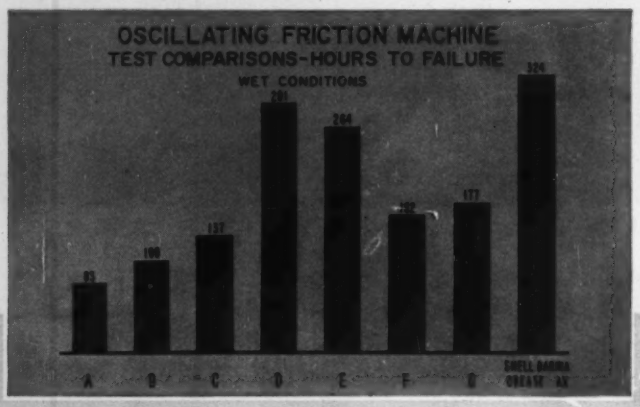
Reid, Rockwell, Banwell & Tarics, San Francisco, are the architects and engineers. Williams and burrows, Inc. of Belmont, Calif. is general contractor. The church is scheduled to open this September.

ATOP THE DOME, workers spin finishing touches on the steel spider web.

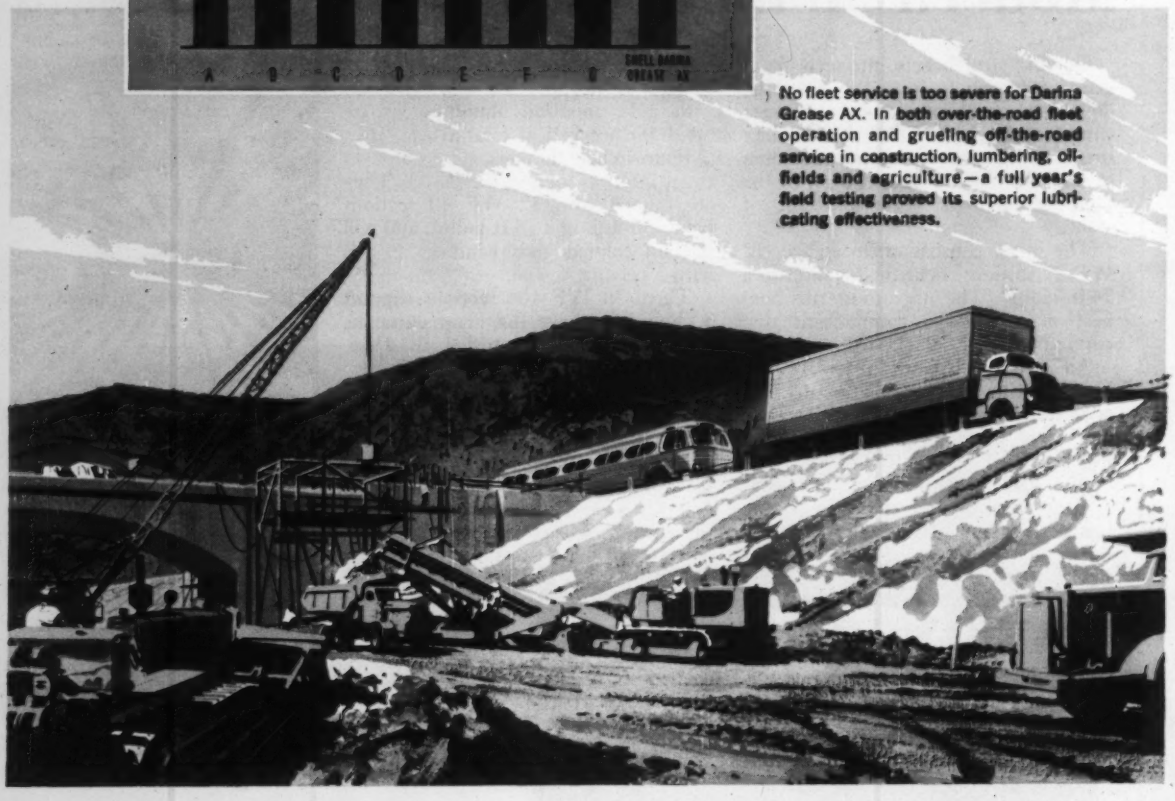
NEW heavy-duty sets



The Shell Oscillating Friction Machine that proves the superior effectiveness of Shell Darina Grease AX under both wet and dry conditions is shown.



No widely used grease—not even the best premium, multi-purpose greases—can compare to the "hours to failure" record set by Darina Grease AX. Chart shows results of the more severe "wet" condition test.



No fleet service is too severe for Darina Grease AX. In both over-the-road fleet operation and grueling off-the-road service in construction, lumbering, oilfields and agriculture—a full year's field testing proved its superior lubricating effectiveness.

automotive grease endurance test record

New findings about Shell Darina Grease AX change maintenance practice for heavy-duty fleets

The toughest job for automotive greases is in shackle-type bearings where the movement is confined to short arcs of 15 degrees or less. Until now, however, most machines that evaluated greases used *rotating* bearings.

The Shell OFM Test (Oscillating Friction Machine Test) equipment, shown on left, duplicates severe *oscillating* service conditions. Bar chart shows how one grease — Darina® Grease AX—outlasts other greases.

Shell Darina Grease AX is a new development that is based on a waterproof MICROGEL* component. Contains *no soap!* Developed by Shell Research to give these qualities:

WASHOUT RESISTANCE. In ASTM water washout test, loss of Darina Grease AX was only one percent compared to washout rates as high as 12% for conventional multi-purpose greases.

WATER ABSORPTION. Tests prove that even water saturation cannot destroy the lubricating efficiency nor metal adhesion properties of Darina Grease AX.

MECHANICAL STABILITY. Darina Grease AX won't liquefy and run out. Its stability is unexcelled by any other type multi-purpose lubricant.

Road Service Confirms Tests

Results are in from sixteen major operators of heavy-duty equipment covering 30 million miles and a wide range of service. Report after report shows how Darina Grease AX extends wheel bearing and chassis lube mileage.

Over 1000 automotive units were used. The results in all cases showed that Darina Grease AX provided superior lubrication for wheel bearings, shackles, kingpins, steering linkages, and other chassis parts.

Shell Darina Grease AX is specially formulated to lubricate heavy-duty equipment that operates under adverse conditions of terrain and climate.

No matter what type of heavy-duty fleet vehicles you operate, you will want the full story on Shell Darina Grease AX. Write or phone today.

*Trademark.

SHELL OIL COMPANY

50 West 50th Street.....New York 20, New York
100 Bush Street.....San Francisco 6, California
In Canada: Shell Oil Company of Canada, Limited,
505 University Avenue.....Toronto 2, Ontario

SHELL

Contractor underpinned subway to excavate highway tunnel.

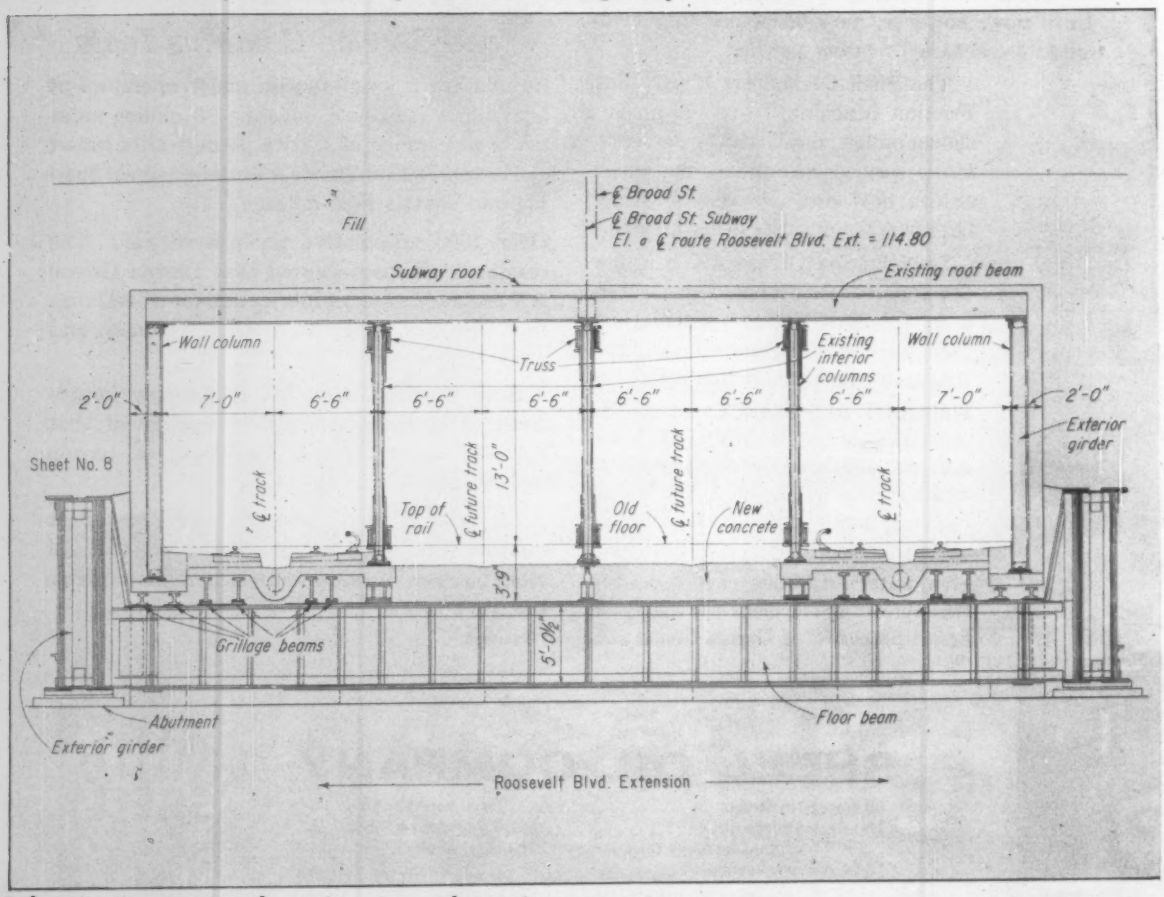
Highway

Designers and builders solved complex problems in constructing the final section of a $24-million extension of Roosevelt Boulevard in Philadelphia. The six-lane expressway will carry traffic from Schuylkill Expressway across the northern part of the city to Roosevelt Boulevard (Route 1) at Ninth St.

Engineers faced these major problems:

- At Broad Street, the expressway had to go below this busy thoroughfare and below a heavily traveled two-track subway, which had to remain in service. Pavement for the extension is some 46 ft below street level.
- Because of limited right-of-way width, the depressed expressway required reinforced concrete retaining walls as high as 40 ft on slopes up to 30 degrees with the vertical.

Construction of the highway "tunnel" at Broad Street required two major steps: (1) installation of temporary and



Subway cross-section shows interior and exterior supporting systems.

Burrows Beneath Subway Tracks

permanent supports for the subway roof, 7 ft of fill above the roof, and the live loads of street traffic; and (2) installation of temporary and permanent supports for the subway tunnel and its traffic.

Here's how the contractor—Buckley & Co., Inc., Philadelphia—did the work:

Before construction began, the subway tunnel consisted of a rectangular concrete box, about 57 ft wide and 16 ft deep, founded on rock. Roof beams are 20-in., 65.4-lb I-beams. In addition to the outside walls, the roof was supported by three rows of interior steel columns; rows are spaced from 13 to 13½ ft c-c, with columns in each row spaced 5½ ft c-c under the roof beams.

Subway tracks—one pair on either side of the tunnel—are located outside the rows of interior columns, between the columns and the tunnel walls.

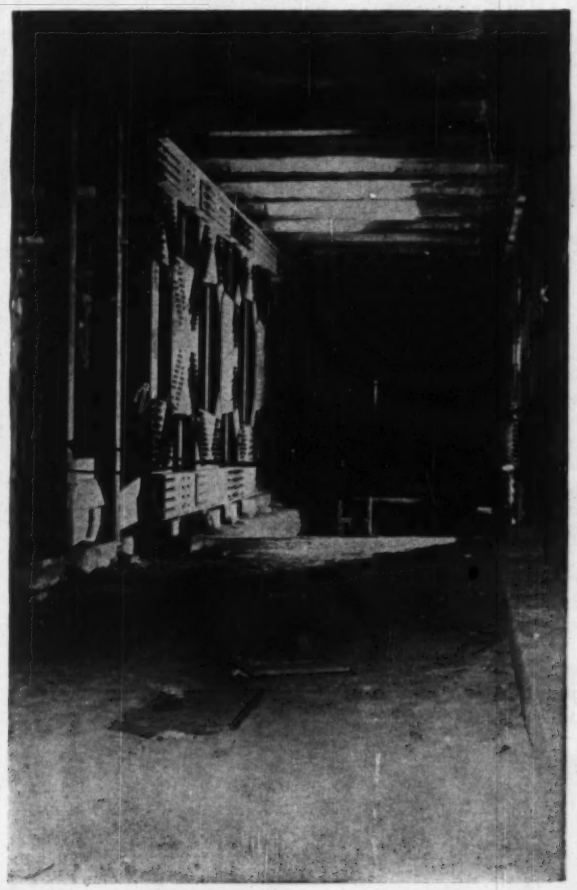
To support the subway tunnel roof and loads above it, designers chose to use three 88-ft-long, 13-ft-high steel trusses with diagonal tension and compression members in each panel. These trusses span the highway and rest on new concrete abutments.

First step in construction was building the truss abutments. The contractor sank a shaft through Broad Street, the street fill, and the subway roof at the location of each abutment. He then excavated for the abutments. Excavated material was removed by a clamshell working at street level. Abutment foundations were carried to rock, concrete was placed, and the abutments finished to a level corresponding to that of the existing subway floor. Temporary supports for the subway roof were installed as necessary.

The contractor shop fabricated the trusses in sections, using riveted connections. To utilize the existing columns, each truss section was fabricated in two halves (as though the truss were split longitudinally down the center.) One-half of each truss is on each side of a column row. Outside halves of the outside trusses were brought in over the subway tracks; other truss halves were brought in over the clear area of subway floor between column rows. Workmen made the field connections with high-strength bolts.

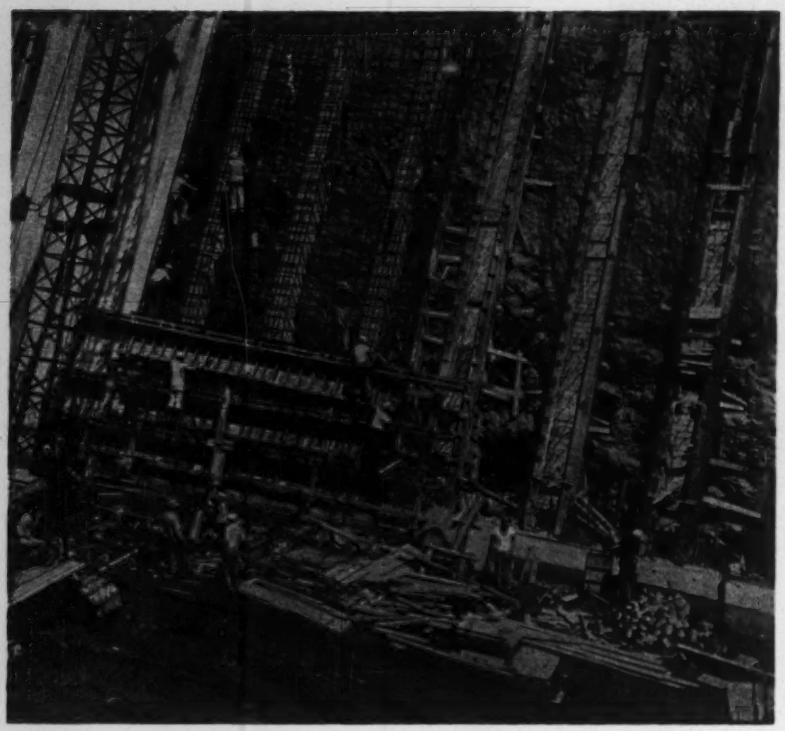
After the trusses were assembled, the contractor drove wedges between the top truss chord and underside of the roof beams at each panel point to produce specified truss deflections. The trusses were then welded to the existing columns and the wedges welded to the chords. Next step was knocking out the existing floor slab (except under the subway tracks).

The contractor then began the second major phase of the operation—underpinning the subway tunnel. Major elements of the underpinning are steel grillage beams, floor beams, and two



Trusses tied to old columns support subway roof.

Depressed expressway will be 46 ft below street.



Workmen swarm over steep bank to form concrete retaining wall.

box girders located on the outside of the tunnel on each side of Broad St.

Each floor beam is a built-up section about 5 ft high and 60 ft long. Twelve floor beams—spaced 5½ ft c-c—support the subway floor; they were placed in pairs.

Roadway excavation was done previously up to the subway tunnel.

The contractor excavated beneath the subway tunnel, working both from the outside and inside. Basic approach was to excavate a tunnel 10 to 11 ft wide completely beneath the subway.

As excavation was done from the outside toward the inside, two 8-in. 40-lb wide flange beams, about 12 ft long, were put beneath the tunnel wall. They were supported by a 12x12-in. vertical timber at each end, with necessary hard wood blocking. With additional excavation, four 18-in. 50-lb-wide flange beams were placed beneath the subway tracks, two under each rail. These grillage beams were also supported by vertical timbers. The contractor thus placed 12 grillage beams, six on each side of the subway.

With excavation of one 11-ft tunnel completed, a pair of floor beams was slid into place. Hardwood blocks resting on temporary concrete footings supported each floor beam. Transverse bracing between floor beams was installed with riveted connections.

With one pair of floor beams in place, the contractor repeated the operation, welding longitudinal grillage beams (which overlapped slightly) together. This phase of the work continued until all 12 floor beams were in place.

Next step was installing the longitudinal box girders, which rest on separate concrete abutments outside the subway tunnel and carry the floor beam end reactions. Each box girder is about 12 ft deep and 75 ft long.

Workmen placed a screw jack between the bottom chord of the center truss and the top flange of each floor beam at mid-span of the floor beam. Before connecting the floor beams to the outside girders, the contractor jacked each beam down ¼ in. at the center. This operation was done for all 12 floor beams simultaneously. Adjustments were made at other support points as necessary.

The contractor then connected the floor beams to the outside girders. As the temporary grillage beam supports were removed, workmen made additional adjustments in the jacks and shims. Jacks were later packed and sealed with bituminous material and encased in concrete.

Final step was placing the concrete subway floor. Grillage beams and top flanges of the floor beams are embedded in concrete.

The contractor excavated beneath the tunnel for the roadway by blasting and a power shovel. About 15 ft of additional excavation was necessary to reach the level of the roadway.

Later, the subway tunnel will be faced with concrete on both sides. There will be a concrete arch conforming in appearance to other overpass structures along the route.

Forming the high sloping retaining walls was difficult because ordinary bracing could not be used. Nor was it feasible to use anchor ties to the bank. Since the in situ material varies from common earth and soft rock to hard rock, this method would have required ties of varying lengths.

Engineers solved the problem by requiring the construction of parallel concrete beams, 24 in. wide and extending 30 in. into the bank behind the wall. These beams extend from top to bottom of the slope and are spaced 10 ft 2 in. c-c.

The contractor used a pair of steel H-piles to form each concrete beam. Welded straps maintained the two piles at the proper spacing. Steps were welded to the outside face of each pile. The pile forms were anchored at the bottom to the previously cast wall footing.

With the pile forms in place, workmen completed excavation of the bank behind each form. Cut lumber filled out the webs of the H-piles and formed the outer face of each beam. Workmen placed 1¼-in. screw anchors at intervals of 4 ft along each beam and perpendicular to it. The contractor then placed, finished and cured concrete for each beam.

After curing of the concrete beams, workers removed the H-pile forms and placed distributed steel reinforcing for the wall. Prefabricated steel panels, 32 ft wide and 4 ft high, formed the outer face of the wall. The panels covered a width of wall corresponding to three concrete beams. The steel frame along the upper edge of each steel panel was fastened by 1¼-in. bolts into the anchors previously cast in the concrete beams. The upper edge frame was long enough to span five beams, with one anchor in each. The anchors prevented any movement of the form during placing of the concrete. Concrete was placed in 4-ft lifts. About 7,000 cu yd of concrete were placed in the walls.

The extension is being built as a city-state joint venture; division of costs and construction responsibility is by agreement. The city's share of the cost is about $790,000 and is made up principally of relocation and reconstruction of sewer and water lines, and relocation of gas mains. The extension is about two-thirds complete.

Total length of Buckley's section is less than one mile; the contract is slightly less than $5 million.

Joseph Norley is project manager for Buckley & Co. and Thomas Carroll is resident engineer for the Pennsylvania Department of Highways. Design consultant for the project is Michael Baker, Jr., of Rochester, Pa.

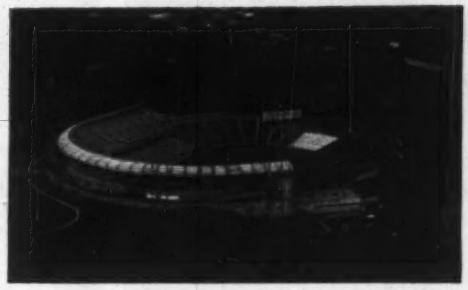
San Francisco scores a homer with Candlestick Park, America's newest stadium

YOU CAN BE SURE... IF IT'S Westinghouse

America's newest baseball arena is lit at night for maximum "playability" with 1147 Westinghouse Type VRC-20 1500-watt floodlights. The precise aiming of the lights was under the direction of Westinghouse Lighting Sales Engineer Reed Hansen, *(below)*, and they are designed to burn at over-voltage increasing their normal candle power 37 percent. This means that players under most conditions enjoy visibility as good as daylight gives without the glare and shadows that frequently plague them on sunny afternoons.

Westinghouse floodlighting system maintains IES standards of intensity for playing areas. The striking design of the wind baffle tops massive concrete stadium. Two of the eight floodlighting towers that are spaced around perimeter of stadium are shown here.

J-94143-2



Giants' new home is Powered-Up for maximum nighttime "playability"

San Francisco's Giants racked up a 3 to 1 victory to open their season and inaugurate their new home in the West, Candlestick Park—one of the finest baseball stadiums in America.

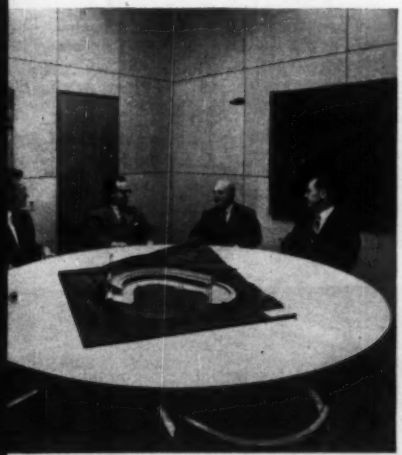
Candlestick Park is a massive concrete structure that has an air of being weightless and soaring. Utilizing precast and prestressed beams and supports, the stadium consists of two tiers of seats (some radiant heated) that provide maximum "seeability" for 45,000 fans—with the upper deck topped by a unique wind baffle. To challenge the teams, foul lines extend 335 feet, and it's 420 feet straight from home plate to the fence. A giant scoreboard not only keeps tabs on the game in progress but also on action in both major leagues. A press, radio and loge-seat mezzanine, dressing rooms, refreshment areas and an 8700-car parking lot complete the impressive installation.

The careful attention applied to the architectural design and construction extends to the electrical distribution system serving the stadium. To give the field maximum "playability" at night, 1147 1500-watt Westinghouse floodlights make this one of the best-lighted baseball diamonds in the country. Included in the electrical system are eight power centers (one for each lighting tower), master lighting control panel, individual lighting panelboards, dry-type transformer, motor

(cont.)

YOU CAN BE SURE...IF IT'S Westinghouse

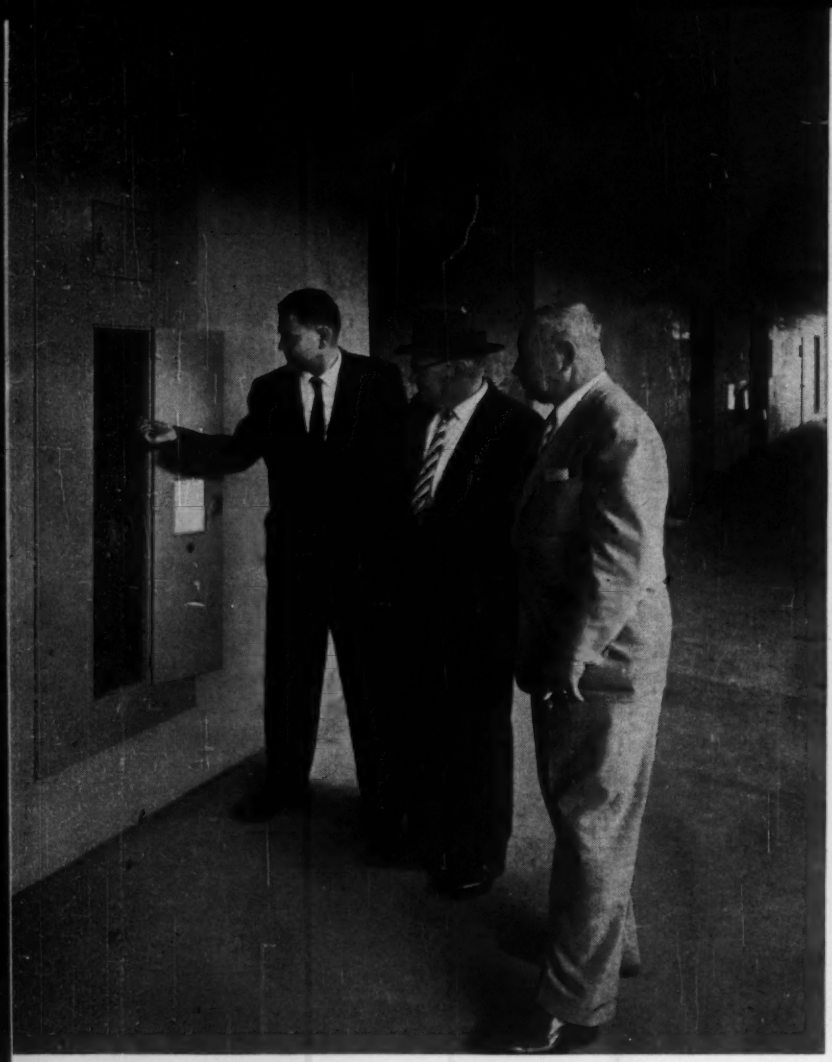
J-94143-3



Checking scale model of Candlestick Park are Lyle E. Patton, Consulting Electrical Engineer; John S. Bolles, Architect; Walter A. Haas, President of the San Francisco Recreation and Park Commission; and Raymond S. Kimbell, General Manager of the San Francisco Park Department.

Economical power distribution for Candlestick Park was achieved with eight Westinghouse unitized power centers of 750- to 225-kva ratings, each having plenty of expansion room. Each power center steps 12-kva primary power down to 120/208 volts to serve lights and electrical equipment. Inspecting one center: M. P. Buswell, Westinghouse Area Sales Manager; C. L. Harney, General Contractor; and L. E. Patton.

Motor control and protection are afforded by the Westinghouse motor control center under examination by H. G. Dechene of Brayer Electric; L. E. Patton; and D. G. Hartman, Westinghouse Sales Engineer. Such control centers group all controls together in interchangeable, space-saving, easily installed modular units. Starter units control and protect motors for air distribution units from centralized location.



Lighting for concourse and corridors is controlled and protected by Type NLAB panelboards located around stadium. Relays and control switches installed in this panel allow remote operation from centralized point. Seen examining this attractive flush mounted panelboard in stadium concourse are H. G. Dechene and G. R. Brayer of Brayer Electric Co.; and Spence Pors, Westinghouse Distributor Salesman.

Comfortable heating for Giants' locker room and clubhouse area is provided by Type AH horizontal air distribution unit, one of four in Candlestick Park. The inherent design of stadium construction, with widely separated points of heating demand, is an excellent application of Sturtevant air handling equipment.

Giants' new home *(cont.)*

control center, air handling equipment and motors. All are Westinghouse products, chosen for their ability to provide dependable, uninterrupted service. Careful attention to future uses for the stadium produced an electrical system capable of expansion. For example, the field lighting and related power supply equipment can be easily enlarged to provide the extra illumination required for nighttime football games. For information about how the Westinghouse products that Powered-Up Candlestick Park can meet your electrical needs, call your nearby Westinghouse Electrical Construction Engineer. Or write, Westinghouse Electric Corporation, Box 868, Pittsburgh 30, Pennsylvania.

OWNER: San Francisco Stadium Inc., for City and County of San Francisco
ARCHITECT-ENGINEER: John S. Bolles, San Francisco
E. Elmore Hutchison, San Francisco
CONSULTING ELECTRICAL ENGINEER: Lyle E. Patton, San Francisco
GENERAL CONTRACTOR: Chas. L. Harney, Inc., San Francisco
ELECTRICAL CONTRACTOR: Brayer Electric Co., San Francisco
WESTINGHOUSE DISTRIBUTOR: Westinghouse Electric Supply Co., San Francisco

J-94143-4

Tough, durable Micarta® is ideal surfacing for Candlestick Park's refreshment counters. This hard-working plastic surface is immune to scuffs, knocks, hot liquids and rough treatment . . . is easily cleaned, never needs refinishing. Shown are Tom Morse, U. S. Plywood Salesman; Joe M. Moore, Cabinetmaker; and Bill Lyle, Westinghouse Micarta Salesman, examining Micarta counter top.

YOU CAN BE SURE... IF IT'S Westinghouse

TUNE IN WESTINGHOUSE-CBS TV-RADIO COVERAGE, PRESIDENTIAL CONVENTIONS, JULY 10-29

British Open Kent Lift Bridge

Great Britain's $3.9-million Kingsferry lift bridge between the county of Kent and the Isle of Sheppey has been opened to traffic. The span over the River Swale provides the island's only rail and road link with the mainland.

Four tapered, reinforced concrete towers rise 130 ft above the surrounding marshland. They lift the 90-ft center section 95 ft above high water to accommodate river traffic. The bridge's electric hoisting motors can raise the 465-ton lift span to its full height in 1¼ minutes.

The Kingsferry bridge is 650 ft long between abutments and 50 ft wide, carrying a single railway line, a 24-ft roadway and a 6-ft sidewalk.

The new lift bridge, which is the first of its type to be built in Great Britain since World War II, replaces a bascule bridge that was built in 1905. The old bridge allowed a navigational opening only 57 ft wide.

Mott, Hay & Anderson of London designed the span. Contractor for the project was John Howard & Co., Ltd., London.

Yugoslav Hydro Project To Cost $78 Million

With the help of $15 million from the U. S. Development Loan Fund Yugoslavia is starting its biggest hydroelectric project.

The project involves damming the Trebisnjica River, which flows through Yugoslavia's barren karst land—a limestone mountain barrier between the Dalmatian coast and the hinterland. Rain and snow fall regularly on the region in the winter months, but there is no earth to hold moisture. The porous limestone sponges up the moisture and feeds underground rivers, which later emerge full grown at the coast. In the case of the Trebisnjica River, the underground channels cannot take the heavy winter flows, and back up to form a large lake covering more than 13,000 acres.

The Yugoslav hydroelectric project will make use of this water by building two dams and two power plants.

One dam, to be built near Trebinje, will be 100-ft high. It will form an accumulation basin. Two 20-ft-dia tunnels will be driven from this basin through the mountains and to the coast. Dropping more than 900-ft en route, the water will feed four generators at a coastal power station. This station will have a capacity of about two-billion kwhr per year.

The second dam, to be the highest in Yugoslavia at 350 ft, will be located about 10 miles upstream of the village of Grancarevo. Below this dam a power plant with capacity of 500-million kwhr per year will be erected.

Estimated cost of the project is $78 million and construction is expected to take six years.

School Construction Boom Continues in Venezuela

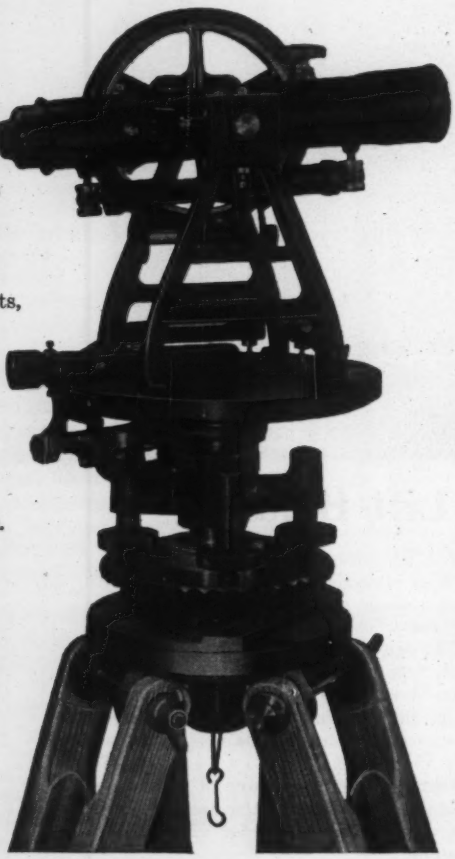
The Venezuela government is pushing a school construction program that will cost over $43 million before it is finished. That figure applies only to schools already in the planning or early construction stages.

Last year, the Ministry of Public Works built 70 primary schools and three high schools, but all of these new schools have been on two-shift operation since they opened.

This year, government plans call for 97 primary schools, 23 high schools, seven normal, three industrial and one business school. This program, under federal administration, does not include the construction programs of individual states.

(*International continued p. 50*)

have you tried the GURLEY optical plummet transits?



Two Gurley transits now feature built-in Optical Plummets to eliminate plumb bobs ...save set-up time ...improve accuracy. The Optical Plummets will focus on distant objects, such as encountered in bridge or building construction—or as close as 12 inches for setting over a point. Built-in shifting head allows 2-inch shift over a point, giving ample leeway in initial set-up. Write for Bulletin OP-100.

W. & L. E. GURLEY
Union Plaza, Troy, N. Y.

Olympic Village and Roads Delayed by Heavy Rains

Rumors that Rome's Olympic installations won't be completed in time for the opening games on Aug. 25 have little substance in fact.

The unfinished looks of the Olympic Village, which will house 8,000 visiting athletes, and the missing stretches of the new motorway, Corso Francia, have fed the rumors.

Reason for the semi-dressed appearance: the Italian Capital has suffered its heaviest rainfall in the last 100 years (the last five months of rain reached 28 in., as contrasted to the normal 19.7 in.) and workers have had to fight treacherous mud. This indeed has delayed some construction—but not beyond opening date.

The Olympic buildings are almost completed and many of them already are in use. Minister of Public Works Giuseppe Togni has formally assured the government that all construction work will be completed by July 31.

Landscaping may be the one phase of work that will go on right up to the time the Olympic flame carrier makes his dramatic entrance into the arena.

Geneva Parley to Study International Pollution

Plans are set for a European seminar on water pollution control. An eight-day meeting will be convened in Geneva the last week in February, 1961 under auspices of the United Nations Economic Commission In Europe, assisted by the World Health Organization, the Food and Agriculture Organization, and the International Atomic Energy Agency.

Theme of the meeting will be the economic, administrative and legal aspects of water pollution control. An effort will be made to formulate principles for control programs on international rivers. There are many problems in Europe associated with pollution originating in one country affecting the welfare of a downstream nation.

The USSR will play an important part in the deliberations. Heretofore information has been lacking on the status of river purification behind the Iron Curtain. The Soviet delegate will make a survey and report his findings to the seminar.

Edward J. Cleary of Cincinnati is acting as advisor to the secretariats of the four sponsoring agencies. Mr. Cleary is executive director and chief engineer of the Ohio River Valley Water Sanitation Commission and also consultant to the West German Ministry of Water Resources.

CONSTRUCTING "JIG-SAW" DOME

NO PUZZLE FOR KOEHRING CRANE

Koehring truck crane with 85-ft. boom and 25-ft. jib handles all erecting of precast forms for unique dome.

A group of unique new landmarks is rising in Milwaukee's Mitchell Park: giant domes of concrete and glass for a modern botanical garden. Milwaukee's Hufschmidt Engineering Company has the task of casting and erecting the concrete hexagons, diamonds and triangles that form the framework for two of these eye-catching structures.

Fast accurate placing of these precast forms — some of which weigh more than 5000 pounds — calls for a crane with real *precision* control and smooth easy mobility. That's why Hufschmidt uses a Koehring 445 . . . a crane that easily meets all the requirements, speeds completion of the job.

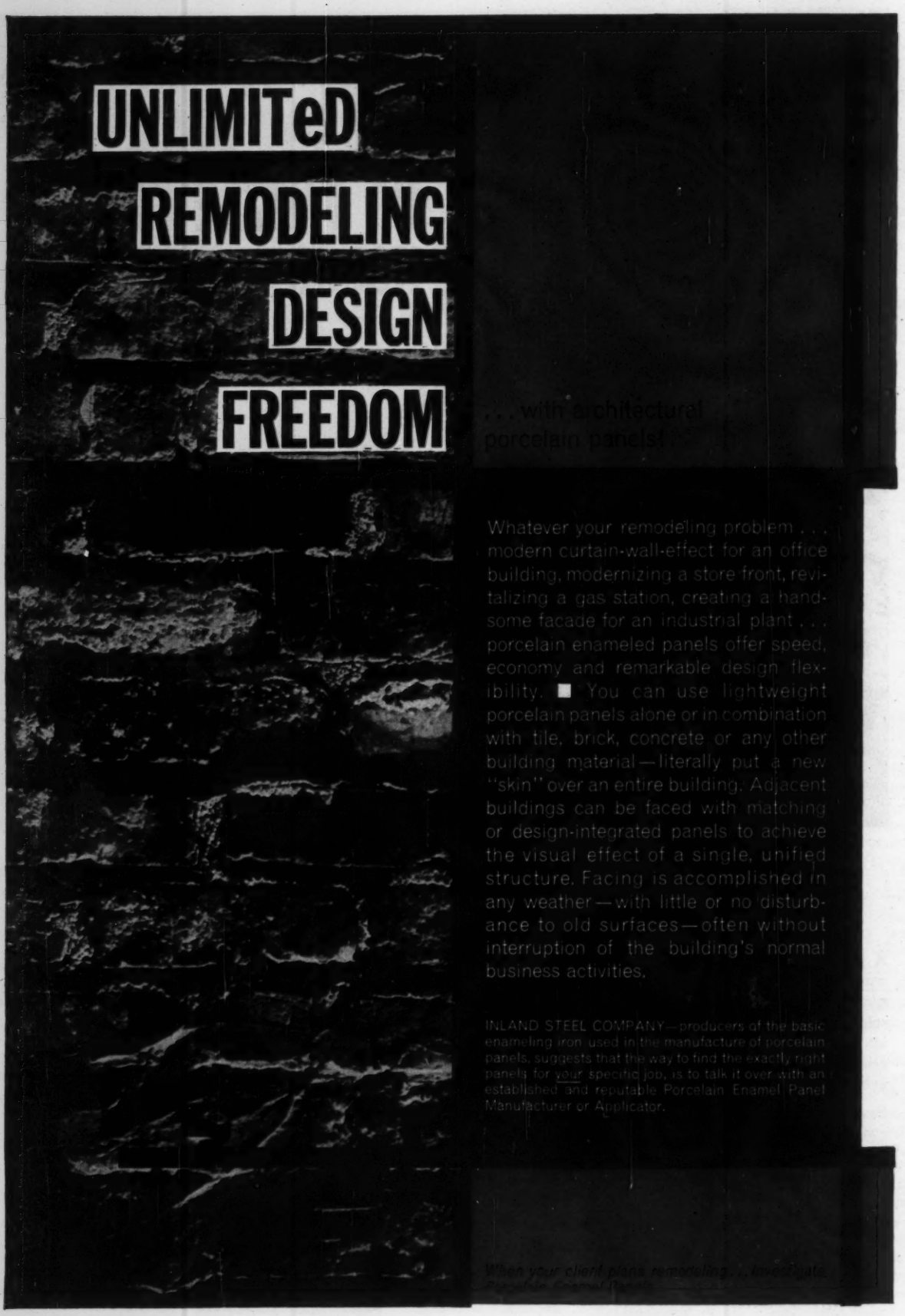
Ask *your* Koehring distributor for all the facts about Koehring truck cranes . . . they can make money for you, too!

More Work Capacity...
More Profit Per Dollar Invested!

KOEHRING HEAVY DUTY

KOEHRING
DIVISION OF KOEHRING COMPANY
Milwaukee 16, Wisconsin

K35

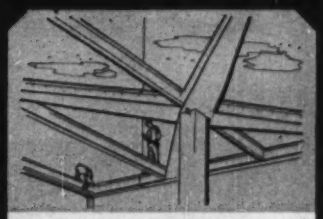


Whatever your remodeling problem . . . modern curtain-wall-effect for an office building, modernizing a store front, revitalizing a gas station, creating a handsome facade for an industrial plant . . . porcelain enameled panels offer speed, economy and remarkable design flexibility. ■ You can use lightweight porcelain panels alone or in combination with tile, brick, concrete or any other building material—literally put a new "skin" over an entire building. Adjacent buildings can be faced with matching or design-integrated panels to achieve the visual effect of a single, unified structure. Facing is accomplished in any weather—with little or no disturbance to old surfaces—often without interruption of the building's normal business activities.

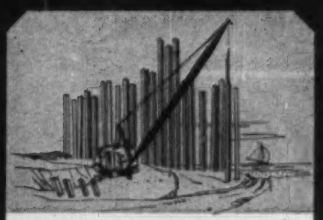
INLAND STEEL COMPANY—producers of the basic enameling iron used in the manufacture of porcelain panels, suggests that the way to find the exactly right panels for your specific job, is to talk it over with an established and reputable Porcelain Enamel Panel Manufacturer or Applicator.

When your client plans remodeling . . . investigate

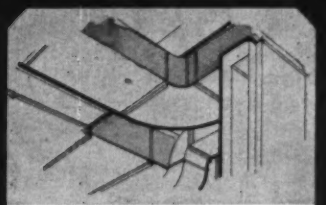
other Inland construction products



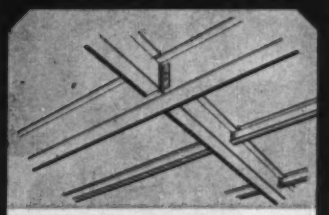
INLAND STEEL PLATES are offered in a wide range of gages and sizes with metalurgical and physical properties tailored to every construction requirement.



INLAND BEARING PILES AND STEEL SHEET PILING are used in foundations, retaining walls, coffer dams and other excavating and supporting jobs.



INLAND TI-CO® GALVANIZED SHEETS are the popular choice of metal contractors who install miles of air handling duct work in the largest commercial buildings. Their nonflaking quality adds years of corrosion-resisting service.

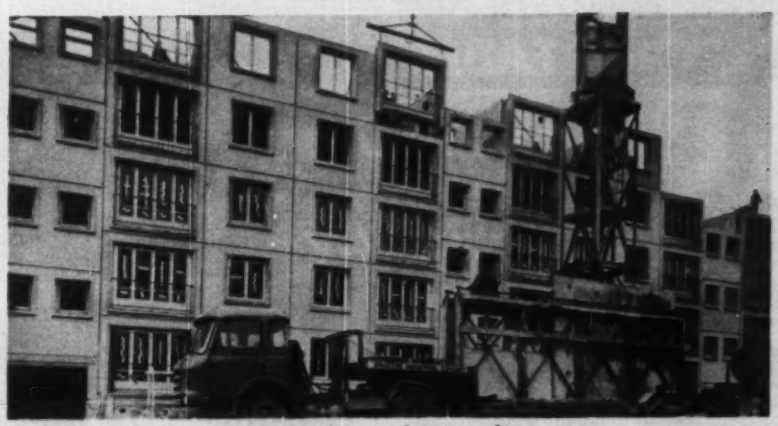


WIDE FLANGE BEAMS are the answer wherever more strength with less weight, longer spans with more open floor area, is the goal. Sizes from 8' to 24'.

INLAND

INLAND STEEL CO.

30 W. Monroe Street • Chicago 3, Ill.



Prefab apartment sections hoisted into place . . .

. . . Form a complete five-story house in only 24 days.

Building Homes in a Hurry

When Asniers, an industrial suburb of Paris, needed housing for 40 evicted families in a hurry, Constructions Edmond Coignet put up a 40-apartment, five-story house in 24 days.

The French contractor accomplished the feat with large prefabricated panels of his own manufacture, using 20 to 25 panels for each apartment. During the 24-day period 32 workers logged 2,900 hours. The foundations had been completed beforehand with conventional methods.

Each Coignet panel is a whole ceiling, floor wall or slab partition, ready for erection. Panels for exterior walls are a sandwich of concrete, filled with expanded polystyrene insulation. The facing, made of special aggregates, has a permanent finish and needs no maintenance.

Ceiling and floor panels are of reinforced concrete. Panels for living room and bedrooms also have oak flooring, two-fifths of an inch thick. For kitchens and bathrooms, the floor panels are tiled.

Interior walls are of solid or hollow concrete. Flights of stairs are also concrete, with finished steps.

In addition the panels come equipped with electrical conduits and with heating and ventilating ducts and chimneys. They are fitted with threaded tubes to hook up radiators, toilets, sinks, bathtubs and other equipment not incorporated into the panel. All panels are made so that they can be assembled together and permanently joined by vertical posts or horizontal ties in reinforced concrete, fabricated on the site.

Architect for the apartment house was J. Riot, Paris. Cost of the building was $171,000. The Coignet process is being licensed to builders in other countries.

TRULY PORTABLE

2-WAY RADIO
with the
SEISCOR
TELEPATH
MINIATURE COMMUNICATION SYSTEMS

. . . for intelligible communications in high noise or poor visibility conditions where direct vocal or visual contact is impossible.

MODELS:

BELT-CLIP MODEL

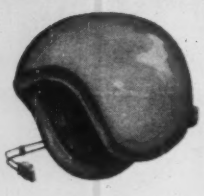
Radio unit; headset with antenna, earphones and microphone; shirt-clip controls

HELMET MODEL

Hard-hat with built-in radio, antenna, earphones and microphone.

OTHER MODELS:

A complete pocket-size 2-way radio



Air Force-Type for jet-engine noise.

FEATURES:

- COMPLETELY TRANSISTORIZED
- CRYSTAL-CONTROLLED RECEIVER
- CRYSTAL-CONTROLLED TRANSMITTER
- LONG BATTERY LIFE
- SIZE: 3" X 6" X 1 1/4" (BELT-CLIP MODEL) WEIGHT: 12 OZ. (BELT-CLIP MODEL) FREQUENCIES: ANY SINGLE FREQUENCY BETWEEN 20-55 M.C.
- NO LICENSE REQUIRED ON CITIZENS BAND MODELS

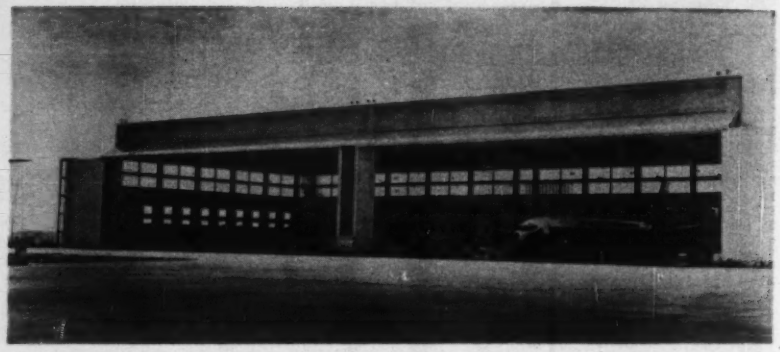
SEISCOR

A DIVISION OF SEISMOGRAPH SERVICE CORPORATION

CONTACT SEISCOR TODAY AND FIND OUT HOW THE TELEPATH CAN HELP YOU!

Seiscor, Box 1590, Tulsa, Oklahoma
Please send complete TELEPATH information.

NAME_____
COMPANY_____
ADDRESS_____
CITY_____ STATE_____



Hangar Girders Span 160 ft

Prestressed concrete girders carry the front end of 150-ft-long roof shells in Air India's jet aircraft hangar at Santa Cruz Airport, Bombay.

The hangar consists of two separate structural units, framed in reinforced concrete with prestressed concrete shell roofs. Each of the two sections contains five shells spanning from the single, 160-ft-long girder at the front to reinforced concrete columns at the rear. Chord width of the shells is 29 ft 7 in. Thickness is 2½ in. Rib beams between the shells—6 ft 6 in. deep by 7 in. wide—are prestressed with eight cables, each made up of 12 wires of 0.276 in. dia.

The main front roof girders spanning 160 ft are 20 ft deep with a maximum beam section thickness of 3 ft 6 in. Each of the two beams is stressed with 20 cables of 12 wires each.

Expansion in the hangar roof is handled two ways. Slip joints between the two halves of the structure and between the end shells and walls absorb lateral movement. And with a clear height of 50 ft, expansion from front to rear is absorbed directly by the columns acting as cantilevers.

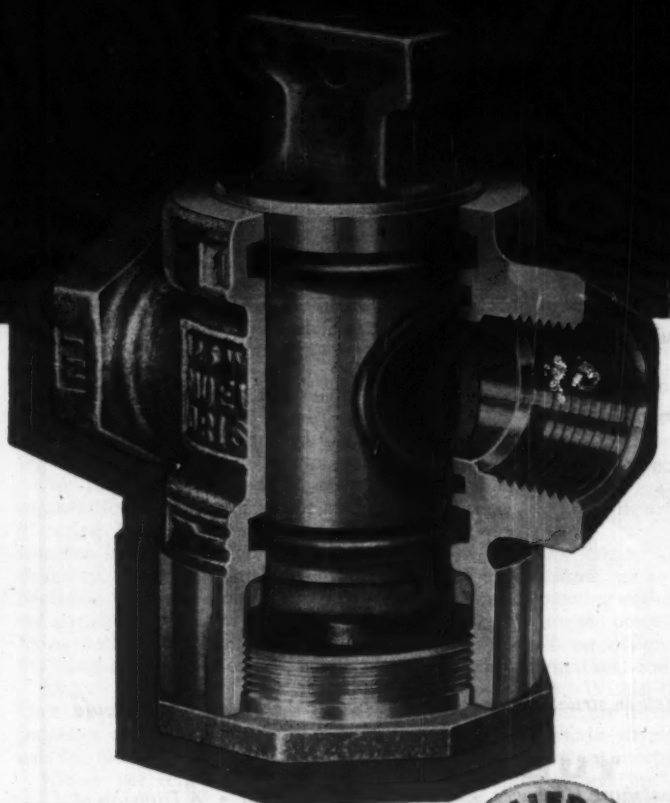
Donovan H. Lee, London, England, was consulting engineer for design of the hangar to Air India's Works Engineering department.

Bridges in Technicolor, Yet

Engineers of the Wellington District of New Zealand's Ministry of Works believe that highway overpasses should be not only structurally efficient and economical, but aesthetically pleasing. To achieve this goal, they are placing emphasis on smooth concrete, color, and such devices as exposed colored stone aggregate.

The slender and graceful appearance of this "Swedish table" bridge results from the use of hollow reinforced concrete girders to reduce weight and size of structural members. The bridge has a duck-egg blue undersurface, and off-white facing surfaces. The top of the hand rail is black, the bottom red. Rail lattice work is white.

MUELLER
VALVE



LEAKPROOF
pressure sealing "O"-rings provide positive sealing without mechanical seating device.

PERMANENTLY LUBRICATED
Teflon-coated straight plug eliminates periodic maintenance.

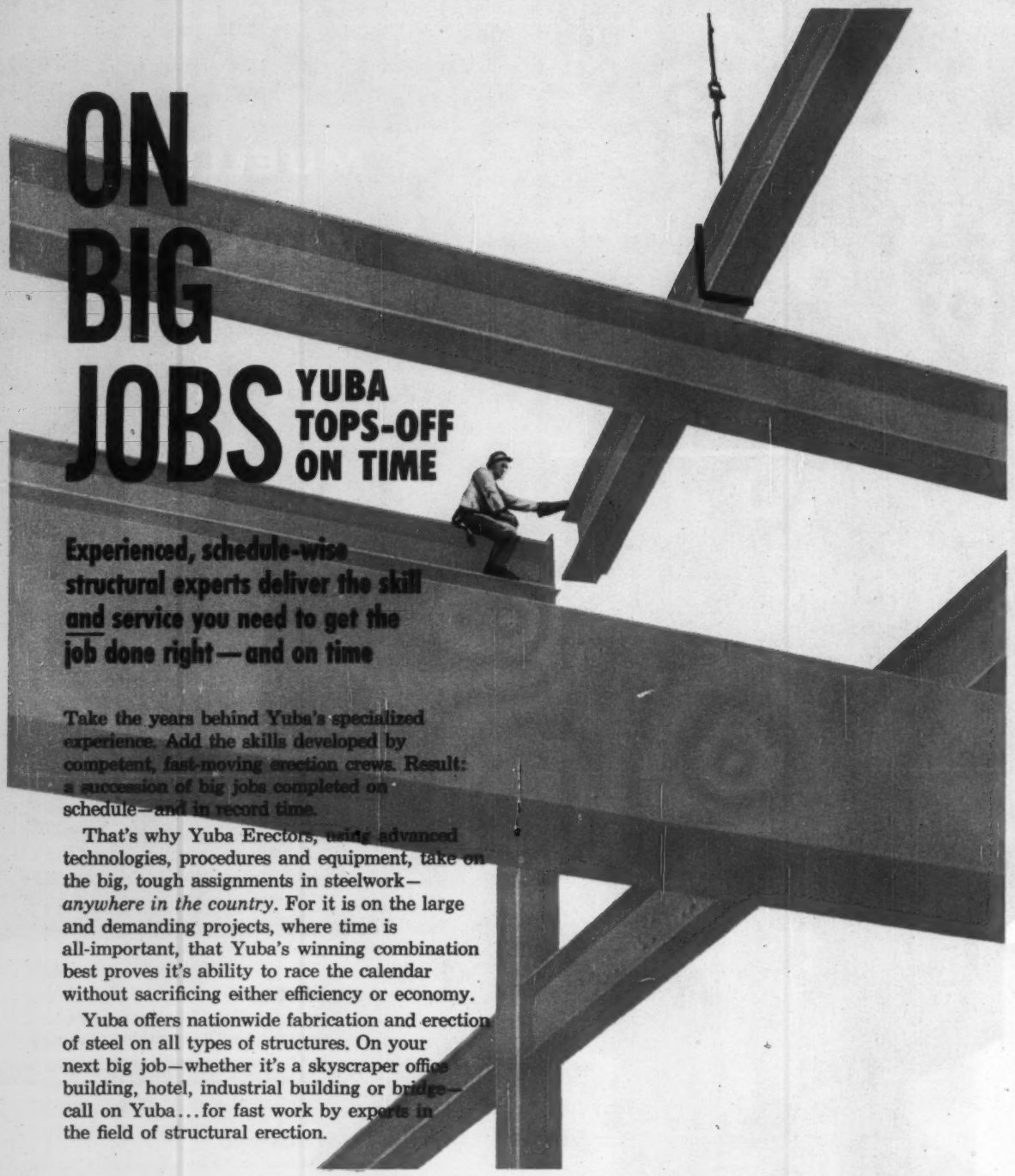
EASY TURNING
2" valves at 125 p.s.i. pressure easily operated with 12" wrench — even after prolonged idleness.

PROVEN
20 years o oratory tests, 12 years of field tests . . . survived 45,000 openings, closings without leaking, changing "O"-rings, or greasing!

See your Mueller representative or write for additional information on the IDEAL curb valve.

MUELLER CO.
DECATUR, ILL.

Factories at: Decatur, Chattanooga, Los Angeles
In Canada: Mueller, Limited; Sarnia, Ontario



ON BIG JOBS YUBA TOPS-OFF ON TIME

Experienced, schedule-wise structural experts deliver the skill and service you need to get the job done right—and on time

Take the years behind Yuba's specialized experience. Add the skills developed by competent, fast-moving erection crews. Result: a succession of big jobs completed on schedule—and in record time.

That's why Yuba Erectors, using advanced technologies, procedures and equipment, take on the big, tough assignments in steelwork—*anywhere in the country.* For it is on the large and demanding projects, where time is all-important, that Yuba's winning combination best proves it's ability to race the calendar without sacrificing either efficiency or economy.

Yuba offers nationwide fabrication and erection of steel on all types of structures. On your next big job—whether it's a skyscraper office building, hotel, industrial building or bridge—call on Yuba...for fast work by experts in the field of structural erection.

YUBA

specialists in structural and heavy mechanical erection—nationwide

YUBA ERECTORS

4300 Eastshore Highway, Emeryville 8, California • A Division of

YUBA CONSOLIDATED INDUSTRIES, INC.

Sales Offices in Atlanta • Buffalo • Chicago • Cleveland • Houston • Los Angeles • New York • Philadelphia • Pittsburgh • San Francisco • Seattle

Methods Unit draftsmen assemble plan-profile...

and typewritten summary sheets as . . .

Minnesota Simplifies Roadway Plans

By LeRoy Swanson

The Minnesota Department of Highways has reorganized its Road Design Section to increase the productivity of its engineers by relieving them of routine tasks.

Goal was to develop an organization that uses the abilities of qualified professional engineers to the maximum and delegates to technicians and clerks certain routine, but nevertheless important, operations.

To achieve this objective, engineers developed a functional organization backed up by a set of Standard Operating Procedures.

An interesting feature of the reorganization is the inclusion of an Engineering Methods Unit. The Unit's function is to increase engineering productivity. Personnel making up the Methods Unit can concentrate efforts on particular problems without interfering with the current production of the Road Design Section as a whole.

Major attention of the Methods Unit has been focused upon drafting processes and the preparation of manuals for internal use.

Ninety per cent of all lettering on plans is now being done on typewriters.

Electrical proportional spacing typewriters with large bold letters (approximately 0.15 in. for capitals and 0.1 in. for small letters) are used. Lettering is typed on tracing paper up to 15 in. wide or on adhesive transparent paper or film. The various sheets of tracing paper are assembled upon a printed border Mylar sheet for processing through a diazo machine. "Originals" are produced from these working sheets.

The finished original is clearer and more readable than one with either hand or mechanical lettering, and the time consumed is decreased at least 85%. One typist can produce the same amount of work in one day as can ten draftsmen by hand or mechanical lettering.

The Methods Engineer functions as a staff specialist adviser to the division heads on engineering and drafting techniques, equipment, processes and materials, research on design criteria and their implementation, and is responsible for manuals. Within the Engineering Methods Unit are these branches:

- Design Criteria—develops road design standards from inception through review, approval and final preparation for inclusion in contract plans.
- Organization, Methods and Techniques—conducts organizational studies; performs methods analyses to increase efficiency and develops techniques to expedite completion of contract plans.
- Automation Liaison—maintains liaison with electronic data coordination division, photogrammetric section and others to determine their applicability to road design procedures.
- Manual Control—plans, develops, publishes and maintains all road design manuals; assists other divisions in manual preparation; publishes and controls all divisional engineering manuals.
- Special Drafting Services—performs drafting as required for the methods section and provides this service to others as directed.
- Policies and Procedures—develops road design policies and procedures subject to approval of the Road Design Engineer; and initiates and establishes standards for the methods section.

In the preparation of detail plan sheets, a procedure is used which allows several people to work on various phases of drafting simultaneously. Here's how it is done:

- Preprinted standard forms for quantities and special information are filled out on the electric proportional spacing typewriter to replace hand drafted, hand lettered forms.
- Special notes pertaining to the project are typed on tracing paper.
- Film transparencies of standard drawings replace redrafting of individual drawings.

(Turn the page)

Mr. Swanson is a registered professional engineer, and Methods Engineer, Road Design Section, Minnesota Department of Highways.

• Special drawings are drafted, with ink or pencil, on tracing paper of the required size.

• The forms, notes, transparencies, and special drawings are arranged on a 23-in. x 36-in. clear Mylar sheet and attached with transparent tape.

• Finally, the assembled sheet is processed in a diazo machine to produce a Mylar or paper transparency original from which are reproduced as many prints as may be desired.

By simplified methods, survey data and topography on tracing cloth prepared in the district field offices or from photogrammetric processes can be mechanically reproduced on plan and profile sheets. As many as 18 plan sheets have been prepared in one day—eliminating weeks of drafting.

A diazo acetate or paper transparency is made from the field or photogrammetric map, then cut into strips and placed on a clear film plan and profile sheet. This sheet is run through the diazo printing machine, together with a sheet of sensitized Mylar. This produces a working plan and profile sheet. The road design layout and profile are then drawn on the working sheet with a specialized film pencil that does not smear and is easily erased. The plan notes are typewritten and checked as they are applied.

With added ease in removing stick-up and pencil lines, revisions cease to be a major problem. A legible print of the plan may be obtained at any stage; and when the design is finally approved the entire job is already "inked." This "stick-up" working sheet is finally run, together with a sheet of sensitized paper transparency on Mylar, through the printing machine, thus creating the "original" from which prints are made.

With this process, clear readable prints of the preliminary design can be furnished to utility companies, contractors, and other interested parties months in advance of the final plans. Furthermore, after final design approval, a complete set of original plans is obtained in two or three days. Formerly, two or three months were required for inking and checking plans.

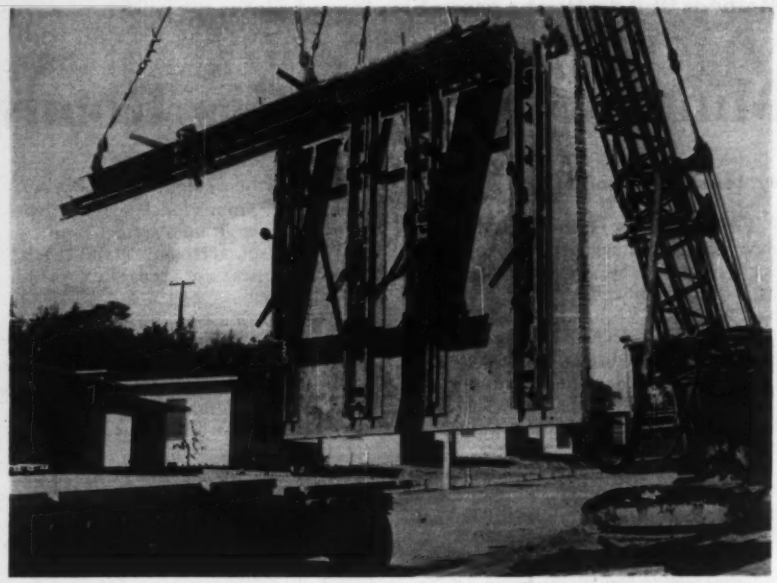
Engineers of the Methods Unit recognize the importance of adequate road design manuals in communicating the thoughts of top engineers to designers, project engineers, and their subordinates. Included are the Design, Technical, Survey, Drainage, Computer, and Standard Plates Manuals. The manuals are prepared in loose leaf form, using a seven number code to permit easy replacement of outdated sheets. The manuals contain official policies, procedures, and technical information.

Published first was the Technical Manual, which provided technicians with a source from which standard approved procedures and applicable work information can be obtained without continual questioning of their supervisors. It includes tables, charts, standards, formulas, and sample engineering calculations. With the looseleaf format, modification and amplification of the manual is a continuing process.

The Technical and Standard Plates manuals have been distributed with others in preparation. Currently, data sheets from unpublished manuals are transmitted for temporary insertion into the Technical Manual.

All personnel engaged in the design of road plans, both in the central office and district offices, were requested to make more use of the electronic computer in their design work. To secure cooperation, understanding, and acceptance, explanatory sheets from the Computer Manual were placed in the Technical Manual. These sheets include simple input forms, which the technicians can prepare, and output forms that can be easily understood by the technicians. This relieves the engineer of the preparation procedure and enables his group to use the computer center effectively.

Other manuals published for the engineering divisions cover materials; grading and base; concrete; bituminous paving; traffic; and state aid. Another manual, "The Finished Contour," is expected to advance the utilization of photogrammetry and electronic computer. This manual is being used as a guide and text for classes being conducted for engineers and technicians in the Department. The contour method of Road Design allows integration of photogrammetric and computer techniques with design geometrics and allows application of new production and reproduction techniques.



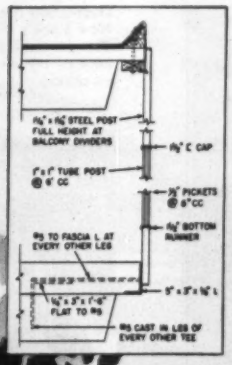
Lifting Precast Concrete Slabs

A six-fingered "flap-lift" for handling precast concrete slabs has been developed by IBEC Construction Corp. for quick handling of precast concrete slabs at a housing project job near San Juan, Puerto Rico.

The one-ton lifting rig consists of a row of six vacuum mat "fingers." These can be used in combinations of twos according to size of slab being lifted. With the rig, panels from 1 to 15 ft. wide can be moved from casting yard to transport truck and the entire unit can lift a five-ton concrete wall section.

The "fingers" swing freely from a common pivot bar at the upper end of a tilted steel channel picking frame. Hung from a crawler crane, the rig is lowered directly onto casting beds and after vacuum is applied through the finger element the slab is automatically lifted starting from one edge. As it is raised, it swings to a vertical position and can be lowered either into position as a vertical wall element or laid flat for transport to another area. The "flap-lift" was designed by Robert Sanderson, project manager for IBEC.

another PRESTRESSED CONCRETE *structure*



Architect: Leon Brin, A.I.A., Denver; General Contractor: Norman Construction Co., Denver; Prestressed Concrete Fabricator: Prestressed Concrete of Colorado, Denver.

Architect Leon Brin cites 'acoustic comfort' as a 'sound' reason why prestressed concrete was used in this Denver apartment

The only thing we've added to Mr. Brin's remarks, quoted below, are italics.

"My apartment owners know their tenants are demanding two features: generous balconies to accommodate their outdoor living requirements, and a soundproof structure.

"In this 20-unit apartment, the double cantilever balcony is easily achieved with the prestressed concrete deck. *Further, the deck and the concrete topping eliminate the troublesome floor to floor sound transmission to provide tenants with the acoustic comfort they demand.*

"In addition, the deck becomes the scaffolding for the brick masons to work on each floor. The steel balcony railing is readily attached to the balcony angle iron fascia. (See detail above). With masonry bearing walls and the prestressed concrete deck *the structure is fireproof with no additional treatment required.*

"The exposed tee sections provide an interesting beam effect within each room as well as from the exterior. Floor to floor heights were actually reduced 8 to 10 inches by using 7 feet 4 inches to the bottom of the tee and 8 feet to the deck. *Weather had no effect upon the erection or quality of the deck which was placed quickly and directly.*

"This construction has worked out so satisfactorily that work is about to begin on a similar apartment building containing 36 units."

Roebling has been a strong partisan for prestressed concrete since its introduction into this country some fourteen years ago. The knowledge and experience gained from this activity puts us in the favorable position of being able to share information and data on prestressed concrete's different phases with you.

Please do not hesitate to ask us about whatever particular aspect concerns or interests you. It may be design methods, tensioning details or information on the finest prestressing wire and strand available, as manufactured by Roebling. Just write Roebling's Construction Materials Division, Trenton 2, New Jersey.

ROEBLING

Branch Offices in Principal Cities
John A. Roebling's Sons Division
The Colorado Fuel and Iron Corporation

1950 Walnut Lane Bridge. America's first prestressed concrete girder bridge. Beams were cast-in-place and post-tensioned. Center span is 160 feet. Lehigh Portland Cement was used exclusively on this project, and on the Washington aqueduct bridge seen on opposite page. Lehigh Early Strength Cement was used in the manufacture of all other prestressed units on these two pages.

From WALNUT LANE...

10 Years of Prestressed Concrete

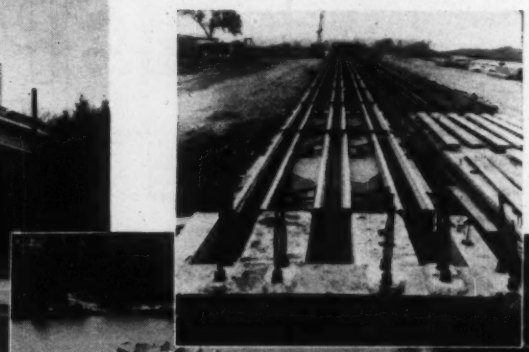
Dedicated in the fall of 1950, Philadelphia's Walnut Lane Bridge is now recognized as the beginning of a major new industry in America—prestressed concrete.

The phenomenal growth of the industry since Walnut Lane is ample proof of the foresight and ability of designers, fabricators and contractors who saw *and did something* about prestressed concrete's advantages. Results—concrete structural members of lighter weights . . . longer, straighter spans with characteristic graceful appearance . . . large column-free floor areas for buildings . . . fast job-site assembly . . . all augmented by the inherent fire resistance and low maintenance of concrete. The future? It's limited only by the imagination.

Lehigh played a significant part in the construction of the Walnut Lane Bridge. And in the 10 years since, Lehigh Cements have been used in hundreds of prestressed structures, a few of which are shown here. Lehigh Portland Cement Company, Allentown, Pa.

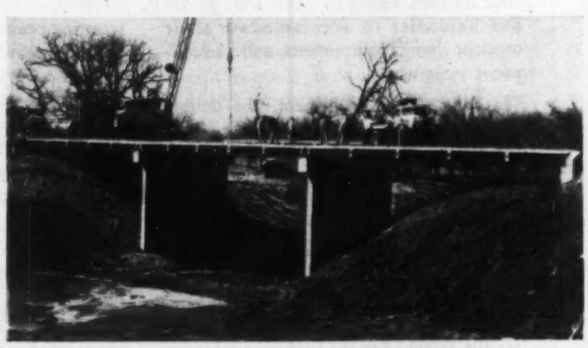
LEHIGH CEMENTS

Over 3,000 prestressed concrete stringers for New York's Pier 57 were cast in these beds. This project is credited with proving the economy of off-job-site mass production of pretensioned concrete units in the U. S.

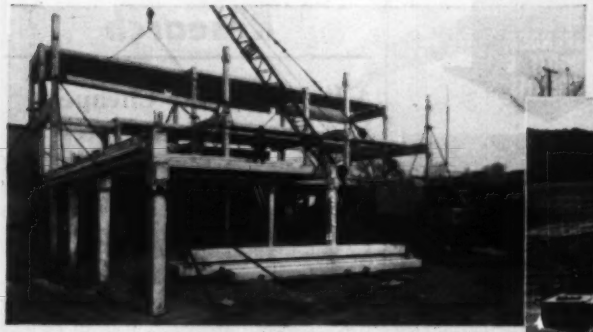


1952 The prestressed stringers for the main deck of Pier 57, as well as the huge box foundations shown above, were fabricated at West Haverstraw, N. Y. and then moved 38 miles down the Hudson River to the pier's present location.

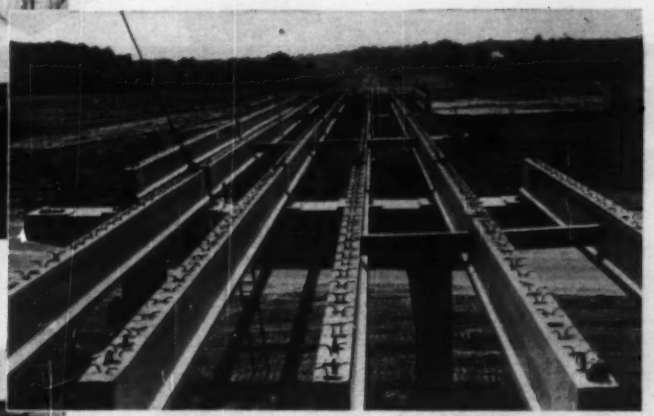
1954 The seven 120′ roof girders in Greensboro, N. C. High School Gym were at that time the longest prestressed concrete girders used in U. S. building construction.



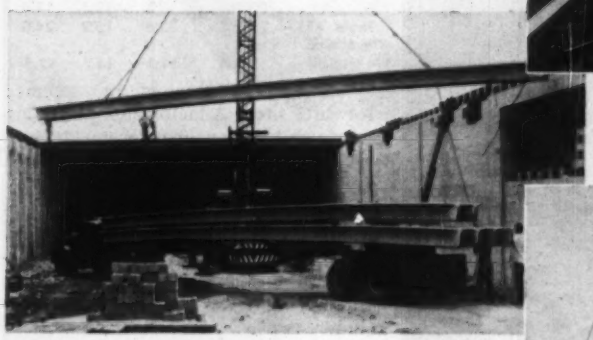
1955 This is the first prestressed concrete highway bridge to be built in Kansas. It is located in Lincoln County.



1956 Precast concrete columns support the prestressed beams, floor channels and roof channels of this 3-story addition to an industrial plant in St. Louis Park, Minn.

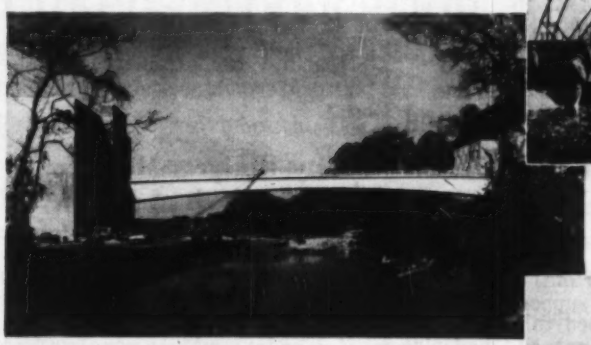


1959 One of the thousands of prestressed bridges which will become a part of our new Interstate Highway system. This one is near Jackson, Tenn.



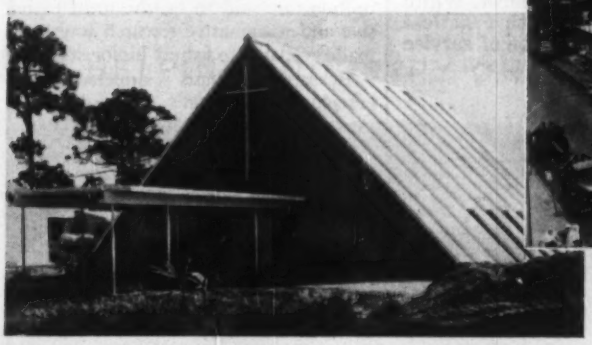
1957 Thirty-eight 60′ long prestressed double tee beams form the roof of part of this synagogue in Vineland, N. J.

1959 Over 400 prestressed box beams up to 95′ long were required for seven bridges for U.S. Route 1 bypass around Media, Pa.



1958 This 216′ cast-in-place, post-tensioned Washington aqueduct bridge at Little Falls, Md. was, at the time of completion, the longest prestressed concrete span in the U. S.

1959 182 prestressed concrete single tee beams (54′ x 8′) provide a 3½-story post-free parking facility for Forbes & Wallace Department Store in Springfield, Mass.



1958 Just 38 prestressed slabs were required for the roof-walls of this unique church in Ft. Lauderdale, Fla.

ANOTHER PROBLEM SOLVED BY SPENCER, WHITE & PRENTIS

ALTERNATE BRACING, NO WALERS

Unique way to use timber sheeting for bank support and back form proves both practical and economical

Project: Military Park Underground Parking Garage, Newark, N. J.
General Contractor: Terminal Construction Corp., Wood-Ridge, N. J.
Consulting Engineers: Weiskopf & Pickworth, New York City
Architects and Engineers: Frank Grad & Sons, Newark, N. J.

In the above-pictured installation of horizontal wood sheeting, the braces are positioned at every second soldier beam. Ordinarily such alternate bracing would require walers; instead, this special design successfully substituted a system of tensioned struts and angles.

Without any encumbering walers, the sheeting served perfectly as a back form—after it had supported a trench (which was needed to relocate an existing sewer line) and had also maintained the street as the contractor excavated 36 ft. to subgrade for the main structure.

The special plan—by Spencer, White and Prentis—proved both practical and economical. Can we be of service to you?

CATALOG ON REQUEST

Spencer, White & Prentis INC.

FOUNDATIONS · PILING · UNDERPINNING · SHORING · COFFERDAMS · SPECIAL SERVICES

10 EAST 40th STREET, NEW YORK 16, N. Y.

DETROIT: 2033 PARK AVE. • CHICAGO: 221 NORTH LaSALLE ST. • WASHINGTON, D. C.: TOWER BLDG.

Research

A-Power Looks Cheapest For Four Military Sites

Nuclear power would be cheaper than conventionally generated power at at least four military locations around the world, according to a study by Kaiser Engineers.

The cost analysis covered 10 sites. Here are comparative costs for the four where nuclear plants appear to be the best choice.

Site	Capacity (elec. kw)	Est. Cost (millions)	Cost of Energy, mills per kwh Nuclear	Ordinary
Okinawa	40,000	$23.7	9.5	10.9
Guam	20,000	17.3	13.5	13.6
Thule AFB	25,000	22.6	15.9	24.8
McMurdo Sound	5,000	11.3	14.7	97.5

Boiling-water reactors are specified for three sites. A factory-assembled, air-transportable pressurized-water type is specified for the fourth, McMurdo Sound.

Hearings are being held on the authorization of one or more of these reactors—but the chances of getting authorization and appropriation for them through Congress this year are pretty slim.

The plan being worked on would have the Navy pay an amount equal to the cost of a conventional diesel powered plant (about $4.4 million) with the Atomic Energy Commission footing the bill for the balance.

Tentative date for on-site construction work would be around November 1.

Utility Budgets More for Fish Research at Pelton

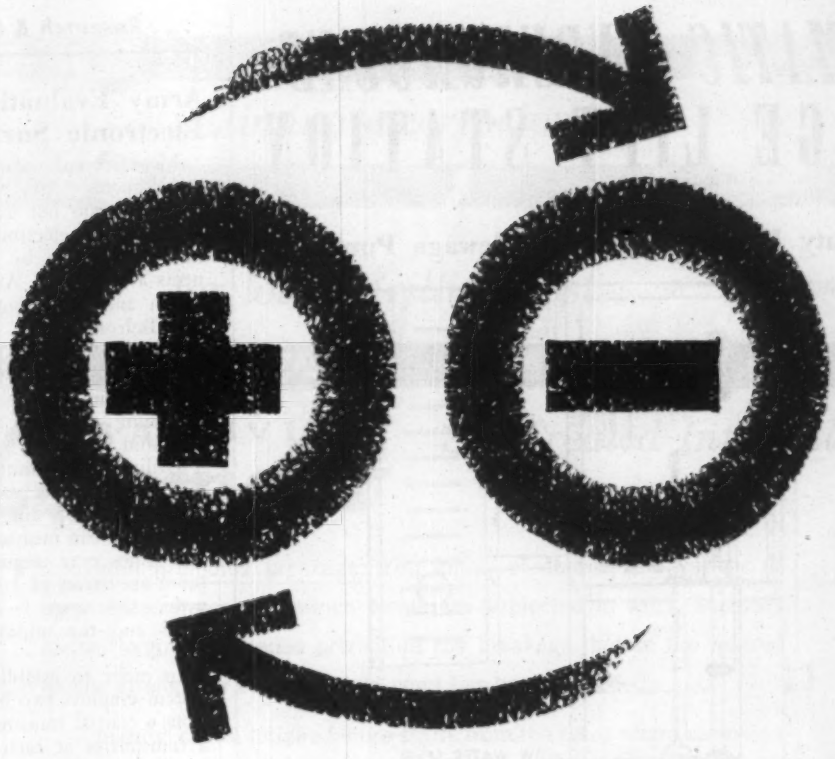
Fishery biologists will benefit further from a continued program of fish research at Pelton Dam. Portland General Electric Co. will pay an estimated $39,722 this year for a cooperative program with the Oregon Fish Commission, Oregon Game Commission and the U. S. Fish and Wildlife Service.

Pelton's fish facilities, which cost $5 million, are said to be the most extensive and imaginative research tools ever made available to fishery biologists.

Research emphasis is directed toward efficiency of Pelton's artificial outlet, prototype of the "skimmer" devices since installed at several projects. Because of this facility, fishery scientists have been able to study effectively for the first time migration schedules and habits of young salmon on the Deschutes River.

Particular attention is being paid to the three-mile-long fish ladder, the world's longest.

(*Research continued p. 64*)



An assignment in migrating ions... for Lukens Application Research.

Corrosion. This is the metallurgical result of ion migration. It's a frequent opponent for the Lukens Application Engineer in his job of helping you determine the *best* steel for "problem" applications. In the case of miscellaneous-cargo tankers, for instance, corrosive hot caustics are often carried on one leg of a trip; on another... high purity glycerine that must not become contaminated. How, marine designers asked, can we get *economical* protection both for cargoes and hold tanks? Drawing on years of experience with process industries equipment, Lukens Application Research suggested the answer: nickel-clad steel—highly corrosion-resistant, comparatively inexpensive—with a special sodium hydride finish that is easy to clean, expedites conversion.

Experience and ingenuity are the stock-in-trade of Lukens Application Engineers. For personal assistance on problems of metals application—corrosion, cryogenics, metal expansivity, abrasion, structural stress—please contact us. Write Manager, Application Engineering, C70 Services Building, Lukens Steel Company, Coatesville, Pennsylvania. Also contact us for Clad Steel Equipment Bulletin No. C70.

HELPING INDUSTRY CHOOSE STEELS THAT FIT THE JOB

LUKENS STEEL

AUTOMATIC UNDERGROUND SEWAGE LIFT STATION

using **weil**

Heavy Duty Vertical Screenless Sewage Pumps

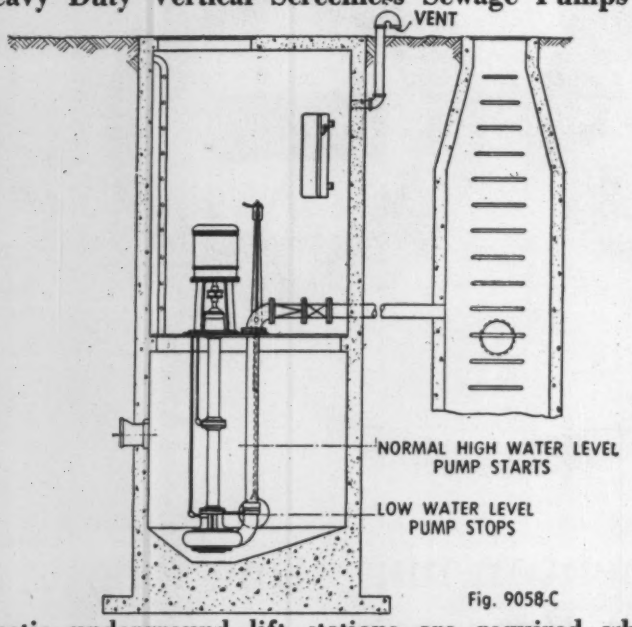


Fig. 9058-C

Automatic underground lift stations are required when sewage or waste from a group of industrial buildings or residences cannot drain by gravity into the main trunk sewer or treatment plant. An economical installation is this submerged style ejector operating in a wet pit. The motor and electrical controls are mounted above the pump cover. Either single or duplex pumps may be used. Provision for increased loads can be made by installing a single pump in a pit of sufficient capacity to allow addition of a second pump at a later period. Pumps can be supplied with totally enclosed or explosion proof motors and moisture proof or explosion proof control where conditions require.

The Weil Heavy Duty Vertical Sewage Pump is supplied with the special non-clog impeller (Fig. C-9001). This impeller is the most important part of this screenless non-clog sewage pump. The complete unit supplies the ideal method of pumping sewage or other unscreened liquids containing solids because the efficiency of this type of unit is measured by its ability to pump waste without trouble from clogging.

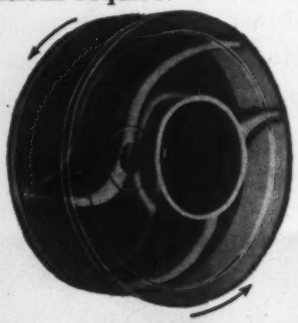


Fig. C-9001

Send for Bulletin C-900. Special engineering data and requirements for underground lift stations will be supplied upon request.

weil PUMP COMPANY

1528 No. Fremont St. Chicago 22, Illinois

Army Evaluating Electronic Survey System

Measurement of inter-island and other geodetic ties where line-of-sight conditions do not exist will be made easier by an electronic survey system under evaluation by topographic engineers at the U. S. Army Engineer Research and Development Laboratories, Fort Belvoir, Va.

The system, called "Lorac," may provide a rapid and more accurate means of measuring distances and also of establishing positions of boats, aircraft and land vehicles.

Utilizing a continuous-wave unmodulated radio transmission sent out from each end of the line to be measured, the system can measure distances up to 100 miles over mountains with minimum accuracies of 1:10,000. Over salt water, the range is increased to 200 miles and the minimum accuracy to 1:45,000.

In order to establish positions, the system employs two baselines extended from a central transmitting station and a transmitter at each end of the two baselines.

Both measurement and positioning employ aircraft-mounted receiving stations.

The system was designed and developed by the Lorac Service Corp., Tulsa, Okla., under contract with the Army.

PHS Keeps a Death Watch On Fish Killed by Pollution

The Public Health Service at present is undertaking a national tabulation of the number of fish killed by pollution.

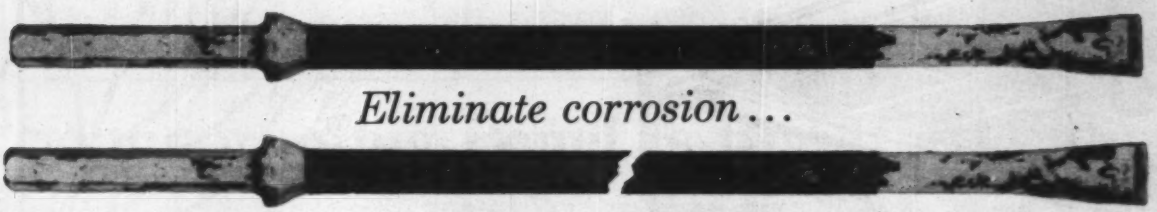
All state fish and game conservation agencies have been asked to provide continuing reports of fish killed by pollution in the nation's rivers, lakes and coastal waters. Reports will be made directly to the PHS in Washington, D. C.

Copies will be made available to the Fish and Wildlife Service of the Department of the Interior, which is cooperating on the project.

Surgeon General Leroy E. Burney sees the project as an effective means of determining the effects of pollution on the nation's water resources, as required by the Federal Water Pollution Control Act.

PHS will publish quarterly and annual reports of fish kills, listing numbers, locations and causes when known.

These published reports will be made available to cooperating agencies, organizations and individuals who request them.



Eliminate corrosion...

for lower drilling cost...

with **SANDVIK Coromant** *SR-Treated Integral Steels!*

- Corrosion promotes breakage: You know, of course, the variety of mechanical stresses to which steels are subjected in work. Stresses cause fatigue; can cause premature rod breakage, before the normal tensile strength or even the yield point has been exceeded.

In most cases, fatigue failure starts from the point where corrosion has set in. In other words, corrosion sets up the conditions for a fatigue break to occur. Except—when you use Sandvik Coromant Integral Steels! The exclusive Sandvik SR-treatment* protects against corrosion and provides from 30 to 50% longer life than untreated steels.

You get other advantages too: Less loss of energy, since the bit is integral with the steel. There is no bit to "get lost". What's more, since Sandvik is one of the world's largest manufacturers of tungsten carbide, you get bigger and better inserts.

Sandvik Coromant Integral Steels are available from 1" to 1¾" bit diameter, in ¾", ⅞", and 1" hexagonal steel section.

Write today for complete information. Address: Dept. ENR-15.

Appearance of a fatigue breakage that often arises with rods that have not been protected against corrosion. Sandvik's SR-treatment* protects against such failures.

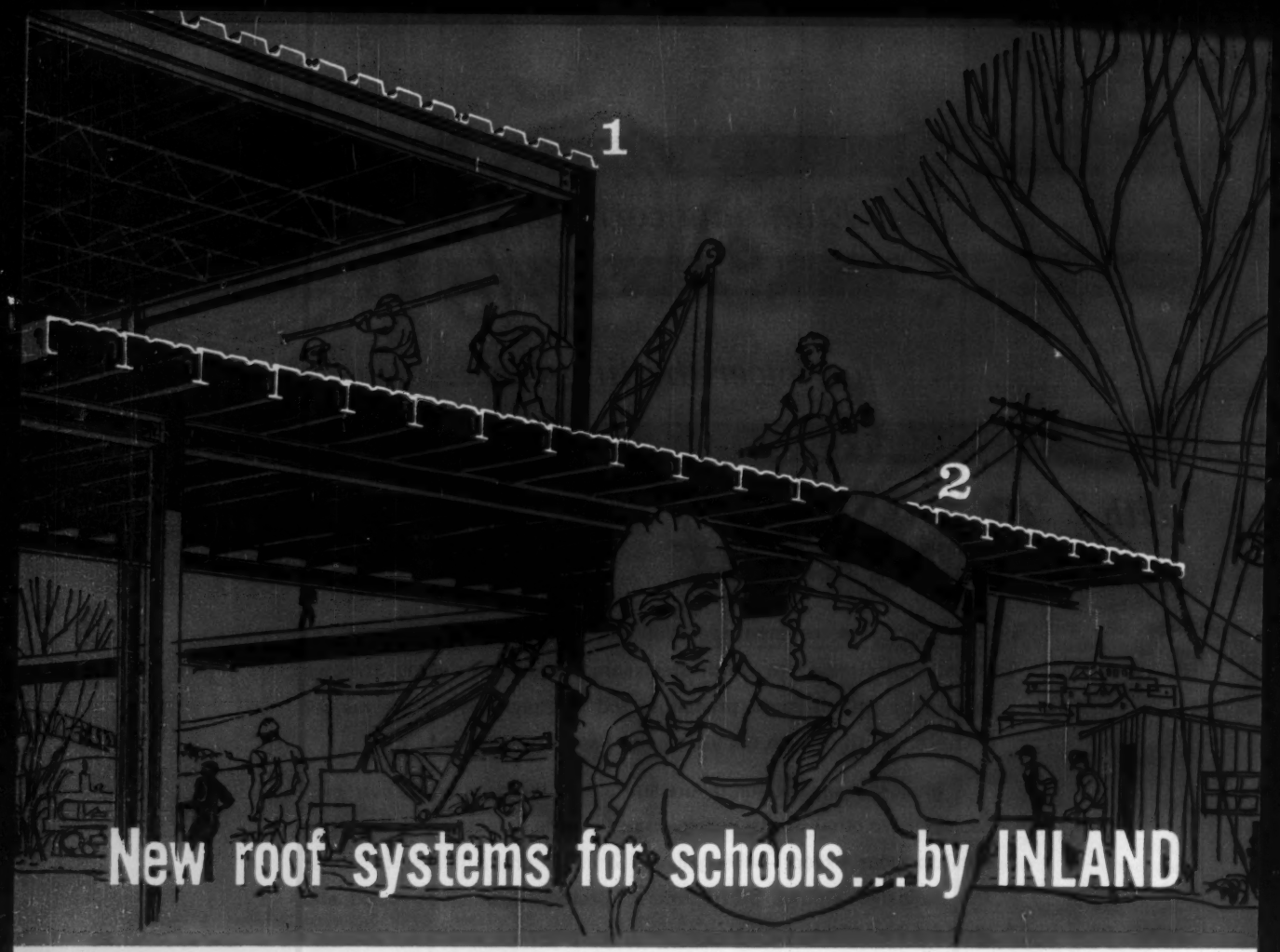
*pat. pend.

Atlas Copco

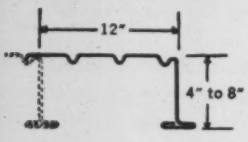
545 Fifth Avenue, New York 17, N.Y.

610 Industrial Avenue
Paramus, New Jersey
COlfax 1-6800

930 Brittan Avenue
San Carlos, California
LYtell 1-0375

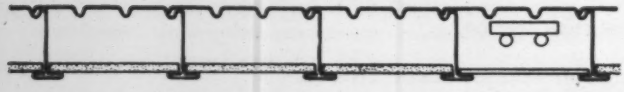


New roof systems for schools...by INLAND

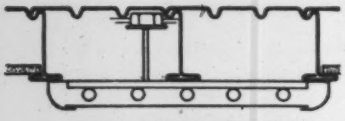


T-STEEL — New! Galvanized. For clear spans to 32'0". Adaptable to acoustical and flush, luminous ceiling treatments. Provides superior diaphragm to transmit seismic and wind loads.

Ceiling Treatments with T-Steel Deck

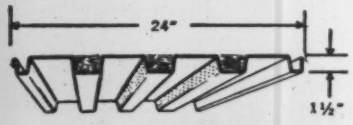


Standard Tile or Board — Light Diffuser

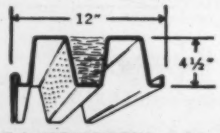


Surface-Mounted Fixture

Lath-and-Plaster Fireproofing



TYPE B ACOUSTIDECK — For purlin spacings from 6' to 10'. Uses minimum of 1" rigid insulation board.



TYPE C ACOUSTIDECK — For purlin spacings from 10' to 20'. Uses minimum of 1½" rigid insulation board.

Complete structural systems that broaden your latitude in planning ceilings, lighting, acoustics —within realistic budget boundaries

1. Acoustideck for gymnasiums, other activity areas

Combines steel roof deck and acoustical ceiling with Noise Reduction Coefficient of .70.

Erected fast in any weather that a man can work. Interesting ribbed underside provides an attractive ceiling.

2. New Inland T-Steel Roof Deck for clear-ceiling classrooms

Especially suitable over classrooms of 26' to 32' spans —or other areas where you want an attractive unbroken ceiling surface.

You can use various types of acoustical tile — provide a flush, luminous ceiling — or leave the underside exposed and painted.

Write for catalogs 240, 241, and 246 or see Sweet's, sections 2c/Inl and 11a/In. Inland Steel Products Company has trained sales engineers capable of giving you the benefit of their diversified experience on specific problems. Write or call your nearest Inland office.

member of the INLAND steel family

ENGINEERED PRODUCTS DIVISION

INLAND STEEL PRODUCTS COMPANY

Dept. G, 4147 West Burnham Street, Milwaukee 1, Wisconsin

ATLANTA, BALTIMORE, BUFFALO, CHICAGO, CINCINNATI, CLEVELAND, DALLAS, DENVER, DETROIT, KANSAS CITY, LOS ANGELES, MILWAUKEE, MINNEAPOLIS, NEW ORLEANS, NEW YORK, ST. LOUIS

Soundproofing Panel Is Rigid, Stable

Geocoustic, a cellular-glass soundproofing material is being marketed in a 13½ in. sq, 2½ in. thick panel weighing two lb. About 2,400 holes of 1/16 in. dia are pressed into both the front and back surfaces. The unit is mounted on four square pads so that it sits ¼ in. from the wall or ceiling thus creating the effect of a resonant chamber.

Geocoustic is reported to have great rigidity and dimensional stability. Small holes of precise dimensions can be made to predetermined depths. Cavaties with extremely accurate dimensions can be designed into the material. Such properties enable production of absorption units that may be precisely tuned to specific frequencies.

Each Geocoustic square is independent of the others. Spacing of the units and the number needed depends on the size of the room and the effect desired. For most rooms, the manufacturer recommends placing units on more than one surface to break up rebounding sound waves.

The squares are claimed to be incombustible and unaffected by moisture. They will not shrink, warp or change dimension with changes of temperature or humidity. Because of the cellular-glass's rigidity, strength and stability, there is no possibility of delamination, peeling or buckling, says the manufacturer.

Geocoustic pads reportedly will sell in competitive range with incombustible type insulation in most installations. About 50 pads, at a total cost of $125, will sound-condition the average schoolroom.

The unit absorbers can be applied in new construction or in existing rooms. They may be mounted with special acoustic cement or with fasteners. The units come in two colors, white or cement block gray; they can be painted other colors by spraying. Pittsburgh Corning Corp., One Gateway Center, Pittsburgh 22, Pa.

Posts Clamp Wherever Needed

An all steel guard rail stanchion serves as a temporary guard rail support around the perimeter of floor slabs, bridges, stair and elevator wells.

The individual stanchions provide an even rail height of 42 in. and accommodate either 2x4's cables or ropes. No tools are required for setup. A heavy Acme thread and handle provide positive clamping action in an oversized C-clamp arrangement that fixes the stanchion to a slab of any thickness from 4 to 20 in.

The completely reusable stanchions allow a double rail fence including top and center rail for extra job safety. Superior Scaffold Co., 5624 Bankfield Ave., Culver City, Calif.

Soot-Blower Nozzle Heads Resist Severe Conditions

An estimated 250% increase in service life plus more complete soot removal has reportedly resulted from the use of high-alloy shell-molded nozzle heads in a soot-blower design for stationary and marine high-temperature boilers. These nozzle heads are used in long retractable soot blowers that are fast replacing fixed units for tube cleaning operations.

The nozzle assembly is welded to the end of a lance that sprays high-velocity steam or air through the nozzles. Simultaneously, the lance rotates and extends or retracts within the boiler.

Because the jets release more mass at higher velocity, resulting in more energy, better cleaning is accomplished with the long soot blower than with fixed units. When blowing operations are completed, the lance and nozzle assembly are retracted into a protective sleeve in the boiler wall or roof.

The nozzle heads must resist unusually severe operating conditions—corrosive materials, temperatures as high as 2300F, and severe thermal shock from high velocity steam. A 25% chromium and 12% nickel alloy, type HH (Alloy Casting Institute designation) was selected for the casting, because of its resistance to cracking in operations involving considerable changes in temperature level and applied stress. Blaw-Knox Co., Copes-Vulcan Div., Erie, Pa.

FOR RUNWAYS WITH A SOLID FUTURE...

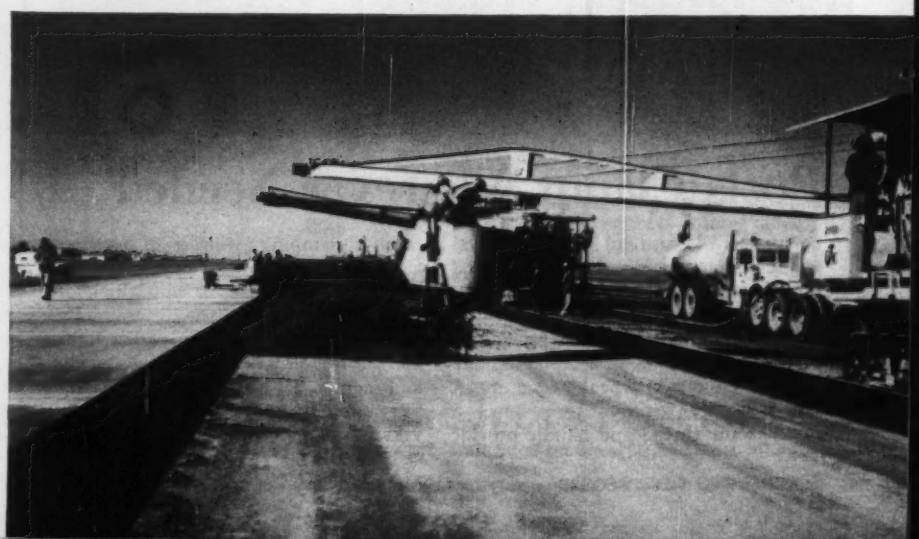
Concrete

At Los Angeles International Airport, old runway resurfaced with

Los Angeles gets ready for jets

Above. Artist's sketch shows how airport will look with modern concrete runways and new futuristic-styled terminal area.

Right. Photo shows modern equipment now placing new concrete directly on the old flexible pavement of runway 25L. They're paving 1,600 feet of 25-ft. strips every working day, will take just 120 days for the whole runway—6,150 feet long by 150 feet wide!



CONCRETE makes

150-ton jets feel right at home!

A 12-inch overlay of concrete provides needed strength to handle the heaviest jet wheel loads ever expected. Concrete is the only true jet-age pavement. On runways *built specifically for jets* concrete has been the overwhelming choice.

And in reconstruction, where the old flexible pavement can still serve as a subbase, covering it with minimum-thickness concrete gives big savings.

Such overlays are possible because concrete is *not flexible*. The strength is in the concrete itself—and not in built-up, layer construction. Concrete is more than a *smoothing* overlay. It's the one pavement with beam strength that enables engineers to compute loads mathematically, design runways for an expected life of *50 years and longer!*

And hot jet blasts can't melt concrete or chew it up. Spilled fuels do no damage, either. Light-colored concrete with its natural grainy surface is the high safety pavement, too. You get better visibility at night and dependable skid resistance whatever the weather.

These are all good reasons, too, why concrete is the preferred pavement for heavy-duty highways—such as those being built for the new Interstate System.

PORTLAND CEMENT ASSOCIATION *A national organization to improve and extend the uses of concrete*

LOOK TO FLINTKOTE FOR ALL YOUR PAVEMENT SEALING AND REPAIR PRODUCTS...

Send today for technical data sheets on the following:

● **FLINTSEAL***—hot poured rubber asphalt compound—tough, long lasting . . . bonds perfectly through cycles of slab expansion and contraction.

● **H-100**—Super effective, polymer type joint sealer (cold applied)—oil and chemical resistant; sets quickly, bonds perfectly at extreme temperatures. *No flow*—even in vertical joints. Ideal for sealing bridges.

● **FLINTAR***—Coal Tar Pitch Emulsion (brush or squeegee applied)—doubles the life of bituminous pavement by protecting against moisture infiltration and oxidation. Beautifies too!

● **FLINTCRETE†**—Exciting new polysulfide/epoxy cement bonding compound. In several formulations for pavement restoration and repair.

Also ask about Flintkote's hot poured and Cold-applied Jet Fuel Resistant Joint Sealers. Complete pavement restoration specifications are available. Write: The Flintkote Company, P. O. Box 157, Whippany, New Jersey.

FLINTKOTE

*Reg. U. S. Pat. Off.
†A trademark of The Flintkote Company

Manufacturer of diversified products for home and industry

NO PLACE TO GAMBLE

Joints on steel plant water line are TAPECOATED to provide protection equivalent to coating on the pipe.

TAPECOAT *is Your Best Bet to Protect Lines in Underground Service*

You take no chances when you specify TAPECOAT coal tar coating in handy tape form for pipe, pipe joints, fittings, couplings, tanks, tie rods, and conduit on new construction or for maintenance.

Since 1941, TAPECOAT has proved its superiority in resisting moisture, acids, alkalis, and other severe corrosive and abrasive conditions.

TAPECOAT comes in rolls of 2", 3", 4", 6", 18" and 24" widths. It is easy to apply with the use of a torch to bleed the coating which serves as both bond and protection. No skilled help required.

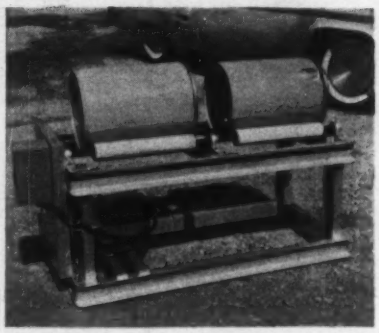
A TAPECOAT sales and service engineer is ready to help you on any corrosion problem. Write for details today.

Originators of Coal Tar Coating in Tape Form

The **TAPECOAT** *Company* 1551 Lyons Street, Evanston, Ill.

Representatives in Principal Cities

Manufactured and distributed in Canada by The Tapecoat Company of Canada, Ltd.
25 Haas Road, Rexdale, Ontario



Rotating Drum Action Pulverizes Test Soil

A soil pulverizer for laboratory use is designed to reduce mechanical work to a minimum, eliminate most of the dust hazard and reduce clay fraction with little reduction of aggregate particles.

Developed by the U. S. Bureau of Public Roads, the pulverizer is essentially a ball mill in which the clay lumps are broken up by the action of loose rubber-covered steel bars in rotating steel drums. The drums are light steel with quick-closing lids.

The rotating device consists of a welded steel frame with rubber-covered shafts and a motor drive. The drums with the samples and bars are placed on the shafts and rotated for a given time, depending upon the texture of the material. The operation is simple due to the removable feature of the drums. Available for one to four units. HOGENTOGLER AND CO., 5218 RIVER RD., WASHINGTON 16, D. C.

Portable Gaslight Burns 50 hrs Per Tank of Gas

The BL-130 floodlight provides a white light of about 15,000 cp at maximum pressure of 15 psi for 50 hours on a 20-lb tank of LP gas. Operating pressure may be varied from 1 psi to 15 psi, giving corresponding variations in intensity to meet lighting requirements. Constructed of anodized aluminum and totally weatherized, the light ignites instantly in temperatures down to −40 deg F.

Cost of operating the floodlight is said to be less than 4¢ per hr at maximum intensity. It features a new type mantle, which is in reality a mantle within a mantle, secured to the burner at both ends for added shock resistance.

The light is completely self-contained and there are no wires or other obstructions. No special skill is required to operate the unit, which is portable and available on a variety of mountings. WM. W. LEE AND SON, 20 EAST JACKSON BLVD., CHICAGO 4, ILL.

Now...one coat of enamel combines rust inhibition, durability and color retention

For the first time these three factors can be provided in one paint containing M50® pigment.

Here's news of a new type of enamel that greatly simplifies the painting of highway signs.

With these new enamels, *one coat* is all that is needed. This single coat combines . . . for the first time . . . more rust inhibition than ordinary primers with even greater durability and "color fastness" than most finish paints. What's more, except for white, these enamels can be made up in all the colors normally used in highway sign painting.

A unique new pigment . . .

M50® basic lead silico chromate . . . gives the one-coat enamels their exceptional properties. In this pigment, one of the most effective of all rust inhibitors, basic lead chromate, is solidly fused to an inert core. In metal protective paints, exposure tests have proved that this pigment maintains high rust inhibiting activity for years and substantially retards color fading.

Greatly inhibits under-the-film rust creepage, as well

As you have probably noticed, when ordinary enamels are nicked or damaged in service, the rust that starts spreads under the paint in no time. As this rust creepage continues, paint flakes off to open the way for further corrosion. The new *M50* one-coat enamels greatly reduce such premature destruction of the paint film . . . help keep sign repainting needs down.

Before you order paint again . . .

Look into these unusual new enamels. They can be made up by your regular suppliers in standard colors.

M50® *an* **orcer** TRADEMARK *Pigment . . . A Development of* **National Lead Company**

General Offices: 111 Broadway, New York 6, N.Y.

7,000 hours on graders without a breakdown . . .

GULF MAKES THINGS

Highway construction on Maryland's John Hanson Expressway can be tough on equipment, reports Regal Construction Company of Forestville, Md. Snow or rain turns the clay topsoil to a bottomless slush. In dry weather, the ground hardens to the consistency of cement.

"When you're fighting terrain like this," explains Chief Mechanic Harry Hann, "7,000 hours of trouble-free operation on graders is quite an accomplishment."

Actually, Regal has been getting similar dependable service from all their equipment. They have to. The record late snows of last winter, and a September contract deadline, make every minute of downtime a minor tragedy. So far, a carefully planned P. M. program, based on Gulf engineering recommendations, has kept equipment operating at top performance.

"To make sure it stays that way," Mr. Hann tells us, "we change oil every two weeks, or 100-120 hours, and do a complete grease job every ten hours." Regal uses

Left to right: Rocco Luppino, President of Regal; Fredrick Pope, Jr., Gulf Sales Engineer; Harry Hann, Chief Mechanic; Dom Luppino, Vice-President. Gulf field engineering assistance is always as close as your telephone.

Regal President Rocco Luppino always directs operations right in the field. His insistence on a thorough P. M. program has paid off in equipment performance. Says Mr. Luppino: "We'd rather buy oil than new engines."

RUN BETTER!

Gulf® Super-Duty Motor Oil and Gulf® diesel fuel. "We find that Gulf fuel is low in sulfur content and is free of gum and water," says Mr. Hann.

On your next job, find out for yourself how quality fuels and lubricants, properly used, can cut costly mechanical delays and help you get greater yardage. Call your nearest Gulf office. For your free copy of the 88-page "Gulf Contractors Guide" — the lubrication and maintenance manual for heavy equipment — mail this coupon.

GULF

GULF OIL CORPORATION
Dept. DM, Gulf Bldg., Pittsburgh 30, Pa.
Please send copy of "Contractors' Guide."

Name_____

Title_____

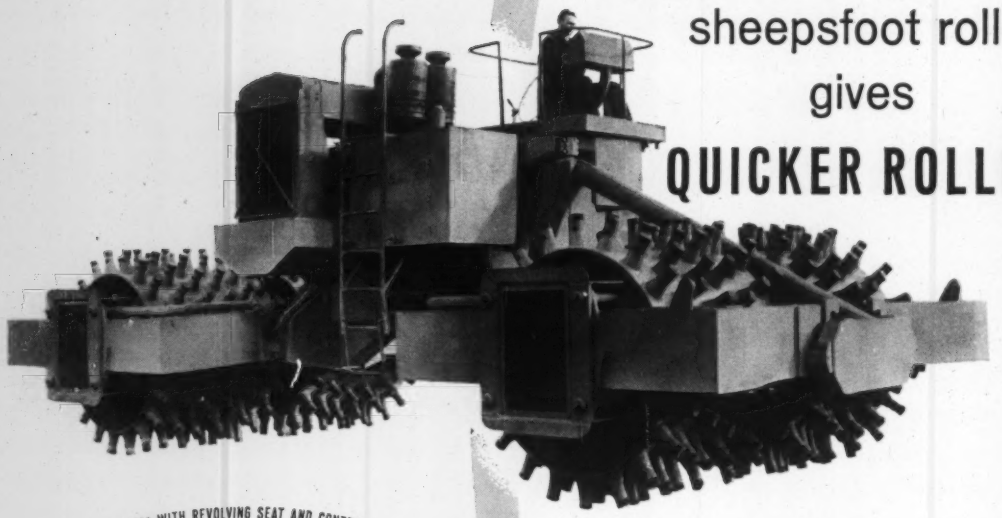
Company_____

Street_____

City_____ Zone_____ State_____

GO-9-3239

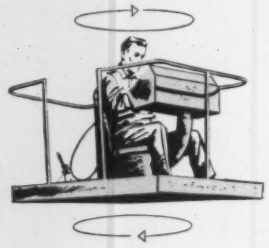
NEW self-propelled sheepsfoot roller gives QUICKER ROLLOUT



save 1½¢ (or more) per cu. yd.

with SERIES M 50-55

POWER PACKER



You'll be amazed at the *extra miles* of compacting you'll get hour after hour, day after day, with Series M 50-55 Power Packers! The reason is simple: This self-powered "sheepsfoot roller" works at a pace appreciably faster than its towed counterparts; and *you never turn around on the fill.*

More power is available for compacting because the Power Packer has to move no "idle" weight of a tow tractor. Each of its four roller drums is driven from the inside by its own electric motor and gear reduction. A diesel-electric generating plant automatically synchronizes the rollers at any of the infinite number of speeds you can select within the range.

Then, to travel in the other direction, merely swing the rotating seat and controls 180-degrees, spin a rheostat, and you're rolling! These quick-as-a-flash starts, stops, and reverses make working tight corners, or over slopes, quick and simple.

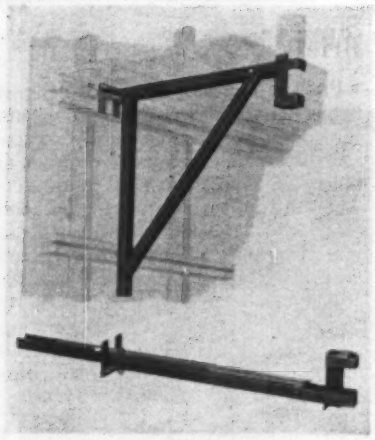
ELECTRIC DIGGER (Series L-50) is another Electric Wheel machine for contractors. It self loads 55 to 60 tons . . . drastically cuts dirtmoving cost.

It all adds up to more production per man hour — the surest way to stay competitive . . . and profitable. Learn how present owners are making Power Packers pay. Just let us know you're interested, and we'll send all the specifics. The address is:

R.G. LETOURNEAU INC

2725 S. MacArthur, Longview, Texas

E108



Scaffold Bracket Adjusts For Variety of Jobs

By simply changing the position of two adjusting pins, this scaffold bracket may be quickly adjusted for connecting to either 2x4-in. or 2x6-in. walers, or set flush with the concrete face after the forms are stripped.

The bracket is considerably stronger than the minimums required by state building codes, according to the manufacturer. Its "knocked-down" feature saves valuable space in storing and shipping and the use of this steel bracket eliminates dangerous makeshift scaffolding. SUPERIOR CONCRETE ACCESSORIES, INC., 9301 KING ST., FRANKLIN PARK, ILL.

Compactor Can Vary Vibration Frequency

A towed type Vibratory Compactor, Model VC80, features a fully variable vibration frequency range. It is reported that this roller can be controlled to vibrate at the natural frequency of a soil mass to obtain greater compaction efficiency than with fixed speed units.

The manufacturer claims design features providing maximum centrifugal force per ft of drum width to prevent bridging over tractor and grader tire marks during rolling operations.

Specifications include a rolling width of 60 in., 7000-lb gross weight, and compacting power of up to 80 tons. The unit is powered by an air cooled gasoline engine of 36 horsepower.

Mechanical features include a balanced frame for easy attaching to a towing vehicle, a micro setting throttle control for precise settings, and an integral unit vibrating mechanism, lubricated by pressure fittings. The Tampo Vibra-Meter is furnished as standard equipment. TAMPO MANUFACTURING COMPANY, P. O. BOX 4248 STA. A, SAN ANTONIO 7, TEX.

NOW... auction sales on credit!

Liberal on-the-spot financing— expert auction clerking—for better construction equipment auctions throughout the U.S.

Now contractors have a new opportunity to make the best deals on equipment — with Thorp on-the-spot credit anywhere in the U.S. at Thorp Auction Sales.

Thorp's complete auction service moves equipment faster, without financial red tape. A buyer can get equipment he wants on a Thorp time payment plan fitted to his ability to pay.

The seller gets the cash, the buyer his equipment — at the close of every Thorp Auction Sale.

Thorp's single-fee auction package includes: Clerking and cashiering by bonded personnel. Extensive advertising. Itemized final accounting of sale, plus the benefit of specialized sale and financial know-how.

For auction information you can use, without obligation, be sure to fill in and mail the coupon below — today.

Bank references: First Wisconsin National Bank, Milwaukee • Chase Manhattan Bank, New York • First National Bank of Chicago • Detroit Bank and Trust Co. • People's First National Bank and Trust Co., Pittsburgh • National Bank of Tulsa • First National Bank of St. Louis • others on request.

Mr. Robert Conway, Vice President
THORP SALES CORPORATION, DEPT. E73
Miracle Mile, P.O. Box 948, Rochester, Minnesota
Without obligation.

☐ send more information on how I can hold a Thorp Auction Sale

☐ send information on time and place of the next Thorp Auction Sale.

NAME.....
FIRM.....TITLE.....
ADDRESS.....PHONE.....
CITY.....ZONE.....STATE.....

15-60

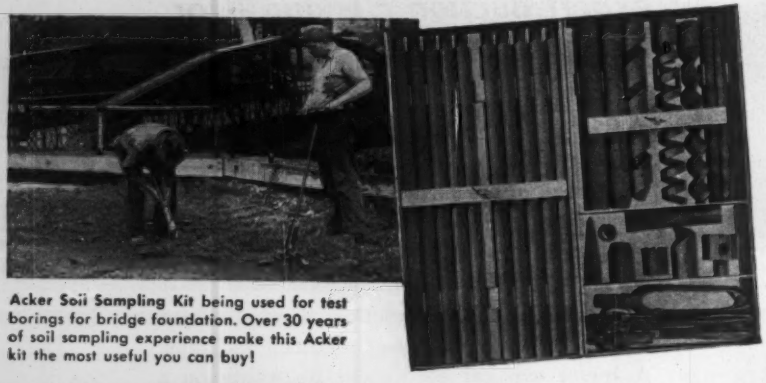
THORP SALES CORPORATION
HOME OFFICE: THORP, WIS.

DON'T GUESS!

use an ACKER SOIL SAMPLING KIT for accurate sub-surface information

With accurate sub-soil information, *you avoid* costly trouble later on. And, what better way to get this information than with a portable, easy to use Acker Soil Sampling Kit. For here is a versatile collection of twelve soil sampling tools packed in a handy steel kit that can be carried in any car.

Write today for prices and Bulletin **26ENR.**



Acker Soil Sampling Kit being used for test borings for bridge foundation. Over 30 years of soil sampling experience make this Acker kit the most useful you can buy!

ACKER DRILL CO., Inc. 725 W. Lackawanna Avenue Scranton, Penna.

a complete line of Diamond and Shot Core Drills, Drilling Accessories and Equipment.

WORLD'S LEADING MANUFACTURER OF ADVANCED DESIGN PNEUMATIC PLACING EQUIPMENT

THE "AIR EXTRUSION" METHOD

Means Lower Concrete Costs

AIRPLACO CONCRETE PLACERS

Whether it has been used to convey or distribute structural concrete to hard-to-get-to pours, for tunnel lining, pressure grouting, for open pours, blowing sand or pea gravel backfill, or for transporting concrete to common receiving bins . . . the AIRPLACO Concrete Placer has consistently meant more concrete in place with savings in time and labor. The new "Air Extrusion" method of concrete placement gives you up to 35 cu. yds. of good concrete per hour.

AN OFFER FOR YOU! AIRPLACO's Engineering Staff is at your service. When you have a job calling for concrete, call on AIRPLACO. Through many years of experience on many types of jobs, we can help by recommending methods and techniques that will cut your costs, increase your profits. There is no obligation, of course. Write, wire or phone.

CONCRETE PLACER

CONCRETE GUNS

MIX-ELVATORS

GROUTERS

SAND BLASTERS

AIRPLACO® AIR PLACEMENT EQUIPMENT CO.

1007A WEST 25TH ST. • KANSAS CITY 8, MO.

Briefs . . .

• **Pressure indicator**—A device designed to measure fluid and gaseous pressures, thrust, torque, and similar phenomena gives remote indication of pressure information from strain gage transducers. The instrument is particularly applicable where the indicator must be far removed from the transducers because of field location or explosive hazards. It will operate at line voltages from 105 to 125 v, 60 cycle, and at temperatures from 32 F to 110 F. TABER INSTRUMENT CORP., NORTH TONAWANDA, N. Y.

• **Electrical distribution systems**—Wheatlanduct underfloor ducts, made of 14-ga galvanized steel, come in 1½-in. depths, 10-ft lengths and two widths: 3 in. and 6½ in. Series 6000 Headerduct, a feeder raceway, is the same size as the larger Wheatlanduct. WHEATLAND ELECTRIC PRODUCTS CO., 7308 CHURCH AVE., PITTSBURGH 2, PA.

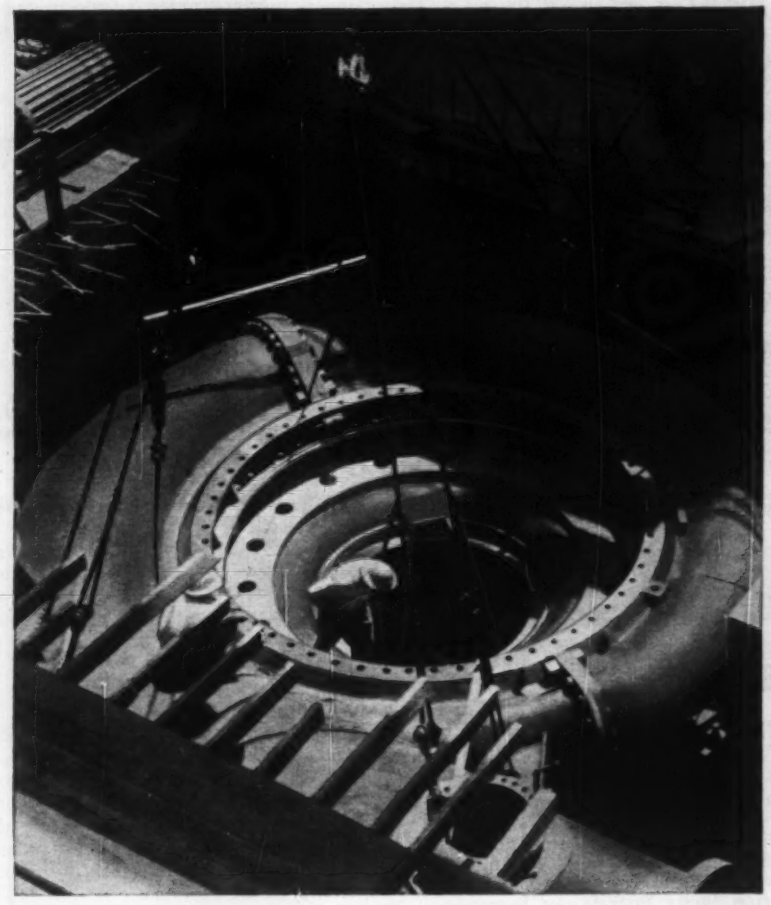
• **Portable compressor**—The Thor Speed Compressor provides up to 150 psi pressure for powering air tools, operating paint sprayers, cleaning equipment and other construction uses. It is powered by a ½-hp electric motor and equipped with a 12-gal air tank. SPEEDWAY DIVISION, THOR POWER TOOL CO., 1421 BARNSDALE RD., LAGRANGE PARK, ILL.

• **Epoxy floor patching**—E-Bond No. 1005 is an epoxy-based compound for patching old concrete or applying nonskid grit to new concrete surfaces. It can be applied also to wood, ferrous and non-ferrous metal. Pigmented in a wide range of colors, it will trowel to a minimum ⅛-in. feather edge. DR. R. E. ROBINSON LABORATORY, 501 N. E. 33RD ST., P.O. BOX A-931, FT. LAUDERDALE, FLA.

• **Precast conveyor frame**—Inverted, prestressed concrete channels provide both support and cover for a new material handling system. Low initial cost is cited as chief advantage of the system. FRANK J. MADISON CO., 607 MARKET ST., SAN FRANCISCO 5, CALIF.

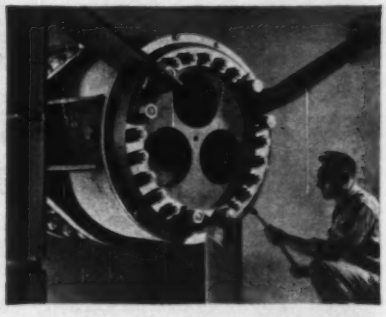
• **Steel fireproofing**—"Red Top Firecode" plaster, a lightweight fireproofing material, is made for direct spray application to steel beams and steel deck units. Fire ratings as high as four hours can be achieved with two-coat applications sprayed 1¾ in thick on steel beams. UNITED STATES GYPSUM CO., 300 WEST ADAMS ST., CHICAGO 6, ILL.

ALLIS-CHALMERS



Spiral case for one of the two A-C Francis turbines at Mammoth Pool (each rated 88,000 hp under 950-ft head at 360 rpm).

Butterfly-type turbine inlet valves—designed for minimum head loss, are bolted directly to 69 inch diameter spiral case inlet flange.



HOWELL-BUNGER valve for pressure relief — one of two 36-inch Allis-Chalmers pressure-regulator valves at Mammoth Pool, in operation under heads exceeding 1000 feet.

Peaking capacity using high-head hydro

...boosts coast utility hydro past the million-kw mark

Two Allis-Chalmers hydraulic turbines installed by Southern California Edison Company at the new Mammoth Pool project operate under a maximum gross head of 1100 feet. After careful consideration of the relative merits of Francis and impulse-type turbines, the Francis type was selected for this high-head installation. Operation of these units as "spinning reserve" required special care in design and manufacture to minimize leakage losses.

Corrosion-resistant wearing plates and gates are precision machined to permit total gate end clearances at assembly of minus nothing to plus 3/1000 of an inch.

Cooling water is piped to the runner seal rings and a complete tailwater depressing system was included by A-C. To facilitate 10-second load rejection and maintenance of minimum downstream flows, A-C supplied two *Howell-Bunger*, free-discharge type, pressure-regulating valves. Two special high head 90-inch butterfly-type inlet valves are provided with corrosion-resistant seals and seat rings adjustable from the outside. A 60-inch *Howell-Bunger* valve and a 72-inch butterfly guard valve are in the reservoir dam outlet works for water release when required.

Look to Allis-Chalmers for engineering, design and manufacture of hydraulic turbines and accessories. *Contact your local A-C office for information or write* **Allis-Chalmers,** *Hydraulic Division, York, Pa.* A-1333

Howell-Bunger is an Allis-Chalmers trademark.

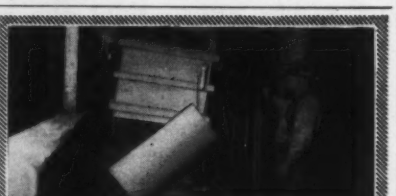
DORRCLONE® DEGRITTING pays off at High Point Treatment Plant, N. C.

Operating in combination with a 16' dia. Dorr Detritor®, a 12" dia. DorrClone washes 190 gpm of grit from the collecting tank underflow at North Carolina's High Point Sewage Treatment Plant. DorrClone degritting reduces subsequent treatment loads, improves overall capacity and efficiency. Equipment is simple, compact and has no moving parts. Plan above shows a typical installation. For more information, write Dorr-Oliver Incorporated, Stamford, Connecticut.

Consulting Engineer: Wm. F. Freeman Inc., High Point, N. C.
Contractor: F. L. Showalter, Inc., Lynchburg, Va.

DORR-OLIVER
WORLD-WIDE RESEARCH • ENGINEERING • EQUIPMENT

PHOENIX BRIDGE COMPANY
Engineers—Fabricators
Erectors
Structural Steel
BRIDGES and BUILDINGS
General Office and Shops
PHOENIXVILLE, PA.
Subsidiary—Phoenix Steel Corporation



ALPINE BOTTOM DUMP CARS
. . . simplify handling sticky muck or ores, save time. Pneumatic dump controls permit easy, one-man operation.

MAYO
TUNNEL AND MINE EQUIPMENT
Lancaster, Penna.

Briefs . . .

• **Surfacing compound**—Para-resin is an epoxy patching and surfacing compound that won't pull away from the original floor material during curing or at any time later, says the manufacturer. It comes packaged with precise amounts of aggregates, resins and pigment so there is no measuring during mixing. Standard colors are light grey or tile red. Special colors are available on request. Paramount Industrial Products Co., 2717 East 75th St., Cleveland 4, Ohio.

• **Color-coated steel**—Nine new shades of color-coated steel are available in 26-gage panels, 36 in. wide and in any length desired. The colored steel is designed for use on walls and roof, or as an accent material with brick, wood, stone or glass. Stran-Steel Corp., Detroit 29, Mich.

• **Pipe cutter wheel**—Honed-edge cutter wheel combines easy-cutting quality of thin wheel with durability of a heavy-duty wheel, the manufacturer states. Wheel fits all of the firm's standard No. 2 pipe cutters and pipe machine cutoffs. Beaver Pipe Tools, Inc., Warren, Ohio.

• **Finish for plywood**—"Lifeclad," a permanent wood grain finish now comes on plywood paneling and matching flush doors. A factory process laminates a grained or clear vinyl plastic film to selected plywood to create the wood-like, stain resistant finish. Simpson Logging Co., 1032 White Building, Seattle 1, Wash.

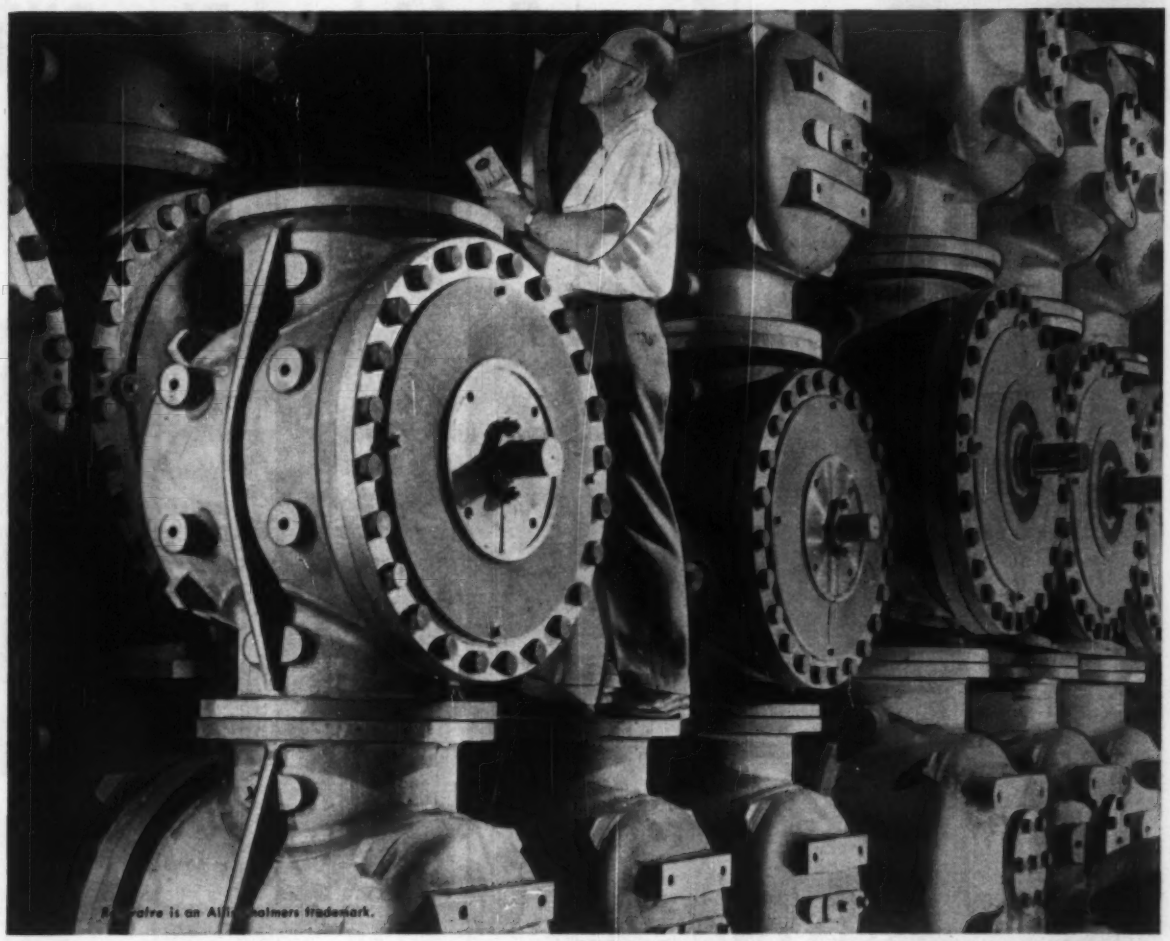
• **Metal joist hanger**—The F-24 joist hanger is constructed of 18-ga, galvanized steel, cold formed under 120,000 psi pressure to increase strength. F-24 is the model for 2 x 4 finished lumber; other sizes are now available for all finished lumber up to 2 x 14's. Simpson Co., San Leandro, Calif.

• **Soil tester**—Apparatus determines density of granular soils by correlating number of hammer blows required to vibrate materials into state of maximum compaction. Soiltest, Inc., 4711 W. North Ave., Chicago 39, Ill.

• **Stack glass**—A special glass coating, produced from 15 blended ingredients melted to 2400 F, can be sprayed onto the inner and outer surfaces of steel smokestacks to protect them from acid corrosion and rusting. A. O. Smith Corp., Process Equipment Division, Milwaukee, Wis.

ALLIS-CHALMERS

A-1260



ROTOVALVE stocks at A-C York Works save months of delay for customers.

Another Allis-Chalmers time-saving exclusive:

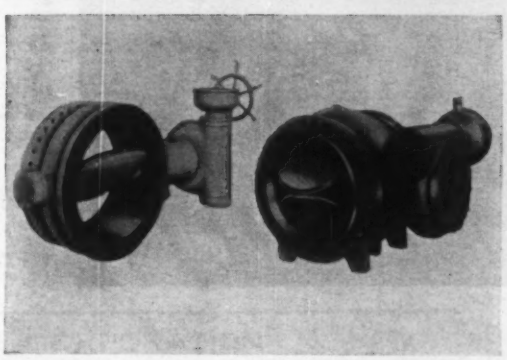
Cone valves "right off the shelf!"

Six to thirty-inch *Rotovalve* units — awaiting your call. Think of the valuable time you save! Typical is the case of a western municipality that recently needed one 24-inch and three 20-inch *Rotovalve* units for their waterworks. Allis-Chalmers assembled all accessories required, completed testing and shipped the valves to customer in less than three weeks! Compare this with the 3 to 6 months normally required by other suppliers for delivery.

Perpetual off-the-shelf inventory of *Rotovalve* units, butterfly and ball valves gives Allis-Chalmers today's only complete rotary valve-stocking program... guarantees fastest deliveries to you.

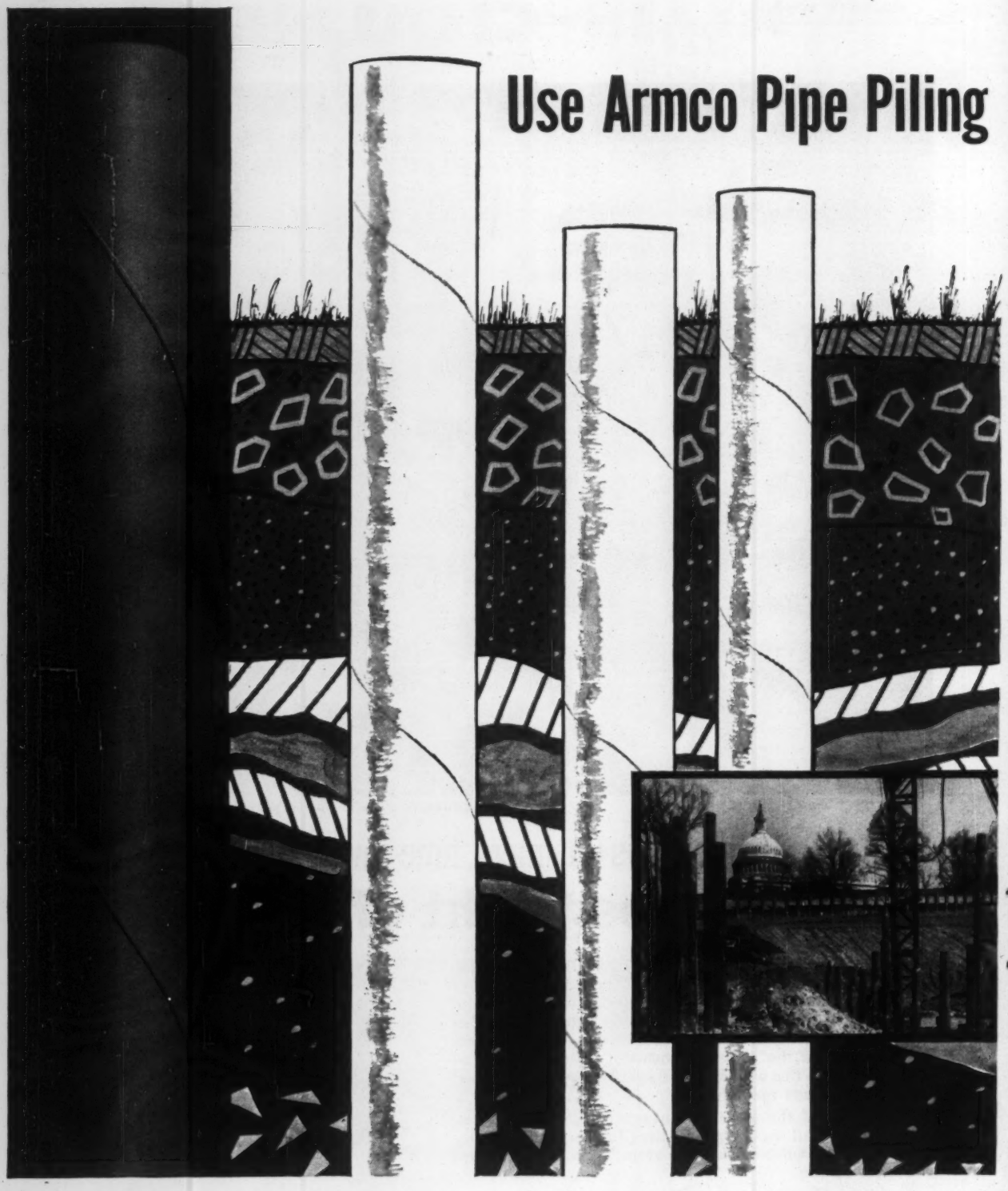
Avoid troublesome, costly delays and get the valves you need to do the job right. For immediate assistance anytime, call your nearby A-C valve representative, district office or write **Allis-Chalmers,** Hydraulic Division, York, Pa.

Rotovalve is an Allis-Chalmers trademark.



Standard butterfly and ball valves illustrated are also available from stock in a broad range of sizes.

Use Armco Pipe Piling



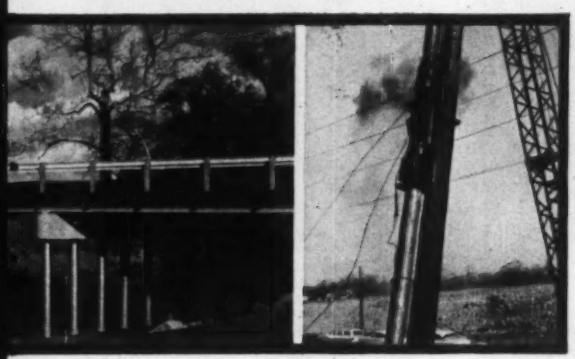
..You can check it where it counts most

IN THE GROUND

When you specify and use Armco Steel Pipe Piling, you'll find advantages that no other type of foundation product can deliver. *After it's in the ground,* you can make a quick, sure check for alignment and watertightness. A light or reflector lets you see all the way to the bottom. You *know* where each pile goes—no doubt about it.

You can get Armco Pipe Piling in 132 different diameter-wall thickness combinations. Lengths are practically unlimited. In addition, you can meet foundation pipe needs from lightweight Armco HEL-COR® Pile Shells. These shells are available in diameters from 10⅝" to 22". Thus, it is an easy matter to specify an Armco Foundation Pipe that meets your *exact* requirements. Get details now. Send coupon for 16-page catalog on Armco Foundation Products. Armco Drainage & Metal Products, Inc., 5670 Curtis Street, Middletown, Ohio.

New steels are born at Armco



ARMCO DRAINAGE & METAL PRODUCTS, INC.
Department E
5670 Curtis Street, Middletown, Ohio
Send your catalog on Armco Foundation Products

Name_____ Title_____

Company_____

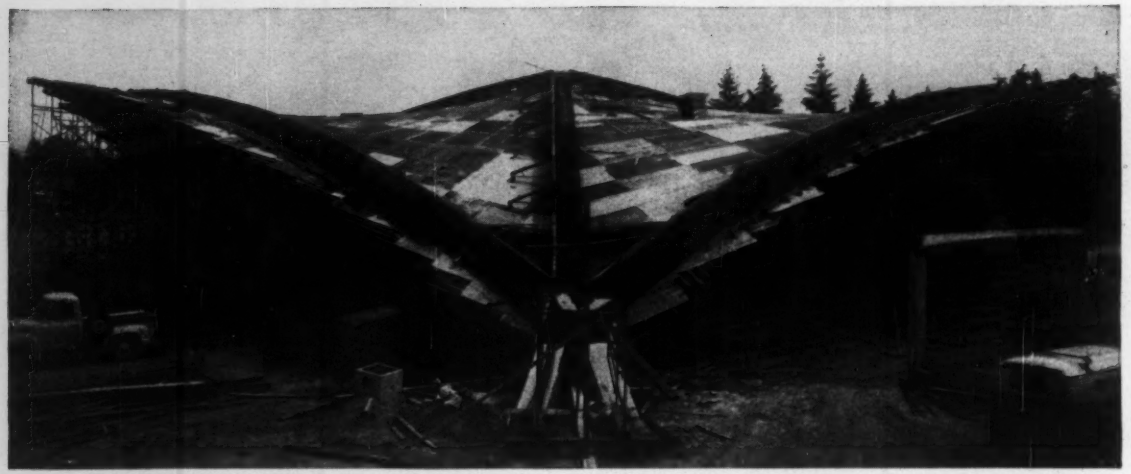
Street_____

City_____ Zone_____ State_____

ARMCO DRAINAGE & METAL PRODUCTS

Subsidiary of ARMCO STEEL CORPORATION

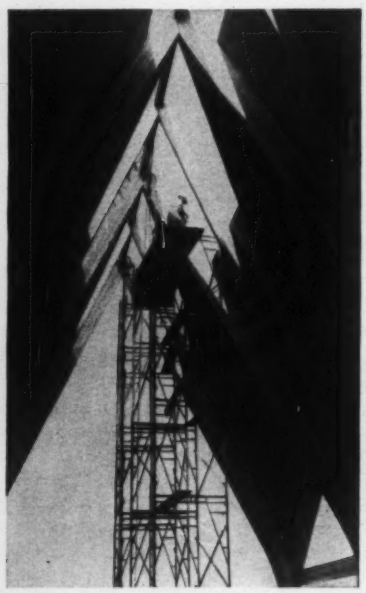
OTHER SUBSIDIARIES AND DIVISIONS: Armco Division • Sheffield Division • The National Supply Company • The Armco International Corporation • Union Wire Rope Corporation



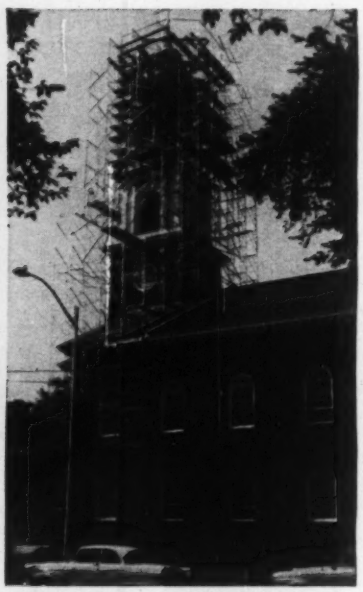
SHORING HYPERBOLIC PARABOLOID STRUCTURE—On the new auditorium for Edward S. Ingraham H. S., Seattle, Sound Construction Co., general contractor, uses 1300 standard "Trouble Saver" Shoring frames to support dome and slab formwork for this concrete hyperbolic paraboloid structure. Design involves three anchors, set 161′ apart, from which three center beams, 2′6″ x 4″, arch to 35′ high. Two perimeter beams per anchor fan out and intersect at 28′ high.

Scaffolding and Shoring Methods . . . by PS CO.

PASS BARRIERS EASILY—Special Retractable Putlogs on "Gold Medal" ® Safety Scaffold Machines provide close-in working platforms and permit Scaffold to clear sun shades on new Loren Building, New Orleans, La. Quinn Construction Co., contractor.



ROLL TO UNUSUAL JOBS—"Trouble Saver" Rolling Scaffolding provides quick access to steep laminated wood bent roof for complicated hand cutting and fitting. Nelson Brothers Construction Co., contractor, Good Shepherd Lutheran Church, Des Plaines, Ill.



BUILD UP TO WORK HIGH—For steeple repairs on the United Church, New Haven, Dwight Bldg. Co., contractor, uses this "Trouble Saver" Sectional Steel Scaffolding erected rapidly from 245 frames and 30 trusses bearing on the ground and the roof.

Complete scaffolding equipment and engineering service offered through nation-wide sales offices or representatives. Look under Patent Scaffolding in the Yellow Pages for your nearest source.

SALES **RENTALS**

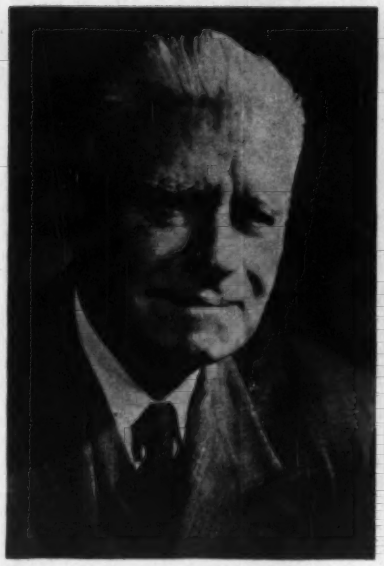
THE PATENT SCAFFOLDING CO., Inc.

38-21 12th Street, Dept. ENR, Long Island City 1, New York

1550 Dayton St., Chicago 22 • Branches in all principal cities • 6931 Stanford Ave., Los Angeles 1

IN CANADA: CANADIAN PS CO., 329 DUFFERIN ST., TORONTO

Men and Jobs



Harry W. Morrison

John B. Bonney

Morrison-Knudsen Gets New Head

Harry Morrison has retired as president of the world-wide construction company he co-founded 48 years ago. While staying on as chairman of the board, he hands over the reins of the company to Jack Bonney, present vice president and general manager.

Mr. Morrison says he is relieving himself of the responsibilities as president as part of a long-range program of planning to sustain company growth and diversification. When he founded the company with the late M. H. Knudsen in 1912, they had $600 cash assets and a $14,000 subcontract to build the Chattin Falls pumping plant on the Snake River. Last year Morrison-Knudsen and its subsidiaries completed $240 million of construction and engineering projects and presently has a backlog of $400 million in contracts.

Jack Bonney, the man succeeding Mr. Morrison, is a veteran of nearly 30 years with the company. He joined Morrison-Knudsen in 1931, five years after his graduation from the University of California. After a year in Seattle, he moved up to Los Angeles district manager.

He became a vice president of the company in 1943, a director a year later. He moved to the company headquarters in Boise, Idaho, in 1947 to assume the duties of general manager.

Mr. Bonney's old position of general manager will no longer exist, says Mr. Morrison. The broadened scope of the company's operations calls for more clearly defined distribution of responsibilities.

Accordingly, he has announced new titles for four other executives.

James N. Wells, formerly vice president supervising the company's Los Angeles District, takes the new position of executive vice president in charge of operations.

The title of executive vice president in charge of administration goes to James D. McClary, currently vice president and assistant general manager.

Caroll F. Zapp, formerly vice president and secretary, is now vice president and general counsel.

Thomas L. Smith, formerly company attorney, has been elected secretary.

Vermilya-Brown Elects Two to Fill Top Posts

Vermilya-Brown Co., New York's 106-year-old building firm, has elected Earl H. Norem to chairman and Frank C. Schmitt to executive vice president.

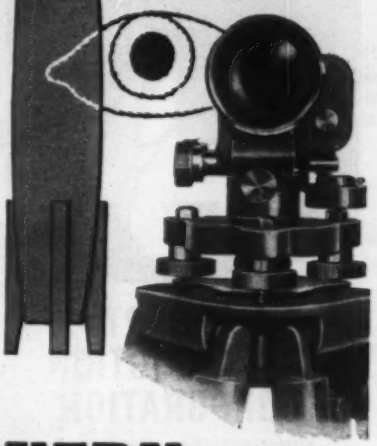
Mr. Norem, currently executive vice president and treasurer, has been with the company since 1911. Among the building projects for which he had charge were the Prudential Insurance Co. home office in Newark and the Federal Reserve Bank of New York, N. Y.

Mr. Schmitt, for the past 14 years associated with Raymond International, has 40 years of construction experience. He supervised the Aiea Naval Hospital and housing at Oahu, Hawaii, military bases for the U. S. Air Force in Spain and 16 buildings for Brasilia, the new capital of Brazil.

You're Not Behind The Times IF You're Behind a

KERN INSTRUMENT

Obsolete surveying tools are time-consuming, wasteful ... out of step with modern construction equipment used on your jobs.



KERN THE MOST MODERN surveying instruments available. Down-to-fundamentals, functional design ... maximum operational efficiency and portability ... reliable precision results.

KNOWN THE WORLD OVER

for accuracy, speed, reliability, economy.

- Minimum set-up time
- Fast, effortless, simple operation
- Readings at a glance
- Exceptional clarity and contrast of image

★

For Full Information Write for Brochure V 554-I

PROMPT, RELIABLE SERVICE
FACTORY TRAINED PERSONNEL

Kern and Only Kern Offers You The Latest Designs of

Dr. Henry Wild

Kern SWISS

The FINEST in SURVEYING EQUIPMENT

KERN INSTRUMENTS INC.
120 Grand St., White Plains, N.Y.

HARBERT

BUILDING FOR . . .
A GROWING AMERICA

HARBERT CONSTRUCTION CORPORATION
BIRMINGHAM, ALABAMA

POSEY WORKS FOR BETTER-

PIPE & SPECIALS

Large OD AWWA pipe for water and sewerage—can be coated, wrapped or lined. Special fittings designed and fabricated.

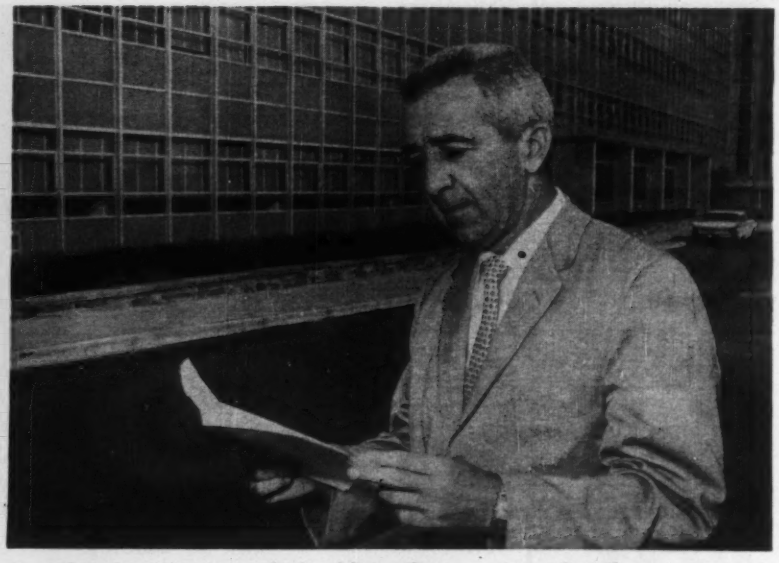
For FREE 16-page illustrated catalog of large O.D. pipe, write:

POSEY IRON WORKS INC

Custom Fabrication For Over 50 Years

DIVISIONS:
• Iroquois Asphalt Plants • Mixers and Blenders
• Tunnel Forms • Industrial Heating • Foundry
• Large OD Steel pipe

561 S. PRINCE STREET LANCASTER, PA.



Maryland's State Roads building frames David Fisher . . .

Chief Engineer for Maryland Roads

David H. Fisher has been named chief engineer for Maryland's State Roads Commission. He succeeds Norman H. Pritchett, who is leaving the agency after 32 years to do consulting work.

Mr. Fisher, a 46-year-old Baltimore native, graduated from the Johns Hopkins School of Engineering in 1936 and shortly thereafter became a design engineer with the Baltimore district, Army Corps of Engineers. During the next five years, he worked on the planning and designing of river, harbor and flood control improvements in Maryland, Pennsylvania and New York.

In 1951 Mr. Fisher was commissioned in the Army and served with the Engineers until 1956, when he was discharged with the rank of Major.

He returned to civilian pursuits with the Baltimore Section of the Corps, but left in 1959 to head the civil engineering section of the Department of Public Works of Maryland.

He left state service in 1951 to take charge of the storm drainage section in Baltimore county's Department of Public Works. Four years later, he was chief of the engineering bureau within the county department.

Mr. Fisher is a member of the American Society of Civil Engineers, the Society of American Military Engineers and the Maryland-Delaware Sewer and Waterworks Association.

Corps Picks Three Division Heads

The Army Corps of Engineers has promoted new commanders to the New England, South Atlantic and North Central Divisions.

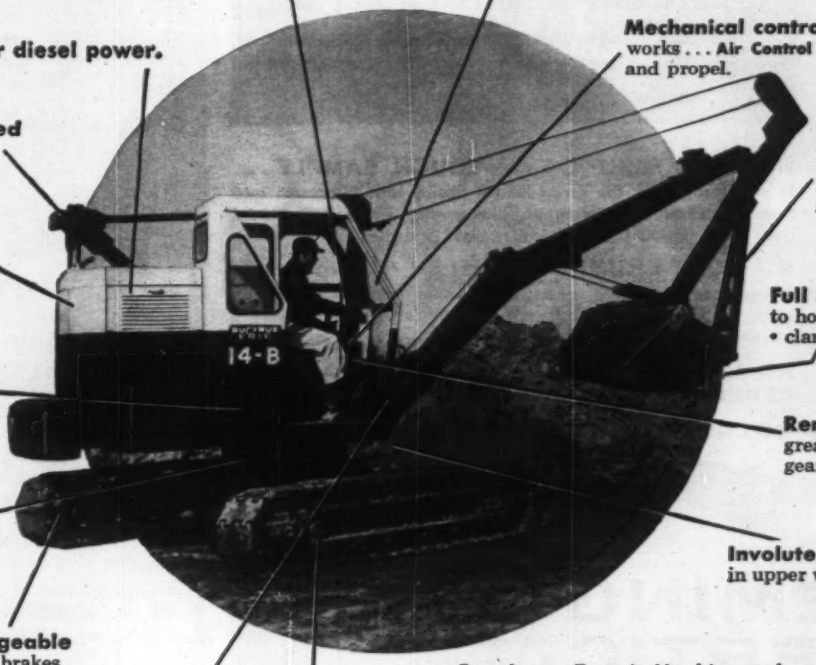
In New England, Col. Seymour A. Potter, Jr., who presently commands the engineering branch of the logistics division of SHAPE in Paris, will replace Brig. Gen. Alden K. Sibley as Division Engineer in Waltham, Mass. Gen. Sibley's new assignment is as yet unannounced.

Col. Howard A. Morris, Sacramento District Engineer, will become Division Engineer of the South Atlantic Division at Atlanta in place of Maj. Gen. Frank M. Albrecht, who is retiring from active service. Gen. Albrecht, who became Division Engineer in 1957, closes a career of more than 37 years as an Army officer.

Col. Thomas D. Rogers, currently Senior Engineer Advisor to the Republic of Korea Army, will be the new Division Engineer of the North Central Division headquartered at Chicago. He replaces Col. Harry O. Fischer, whose new assignment has not been announced.

All three of the new appointees will take their duties late this summer and at the same time will be nominated by the President for promotion to the temporary rank of Brigadier General.

...in everyone's price range!



Air-powered Quick Shift, swing to propel on crawlers.

Full-visibility cab that lets you see in all directions.

Choice of gas or diesel power.

Mechanical controls for the upper works . . . **Air Control** for steering and propel.

Direct drive, 3-speed transmission or torque converter drive.

Handles ½ and ⅝-yard dragline and hoe buckets to suit job conditions.

Full-paneled cab for easy access all around.

Full convertibility to hoe • crane • dragline • clamshell • shovel.

Enclosed gears on main machinery, running in oil.

Remote lubrication grease gun for swing gear and pinion.

Ball bearing swing circle adjusted for life at the factory.

Involute splined shafts in upper works and crawlers.

Identical, interchangeable operating clutches and brakes on main shafts.

Color code lube guide.

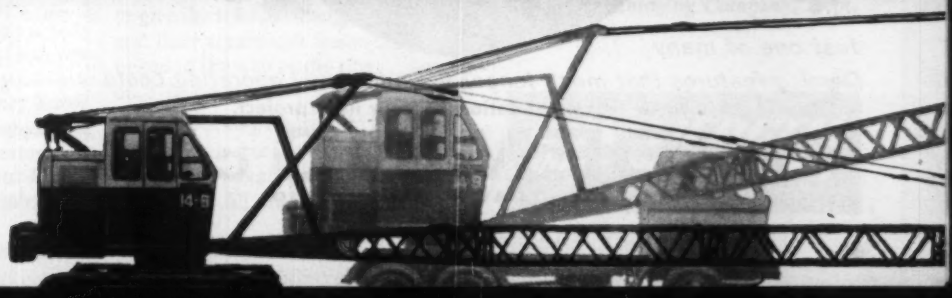
Crawler outriggers to boost standard crawler capacities by 15%.

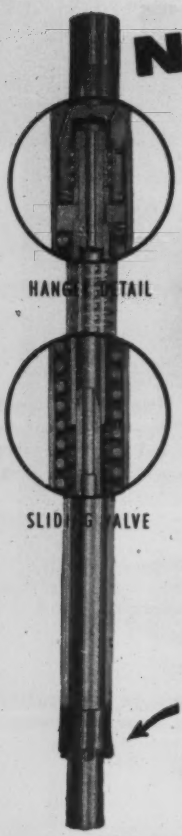
Crawler or Transit Machine, take your choice and get the best buy on the market for *work* capacity and *lift* capacity and *profit* capacity in a price range that's the best news of all!

most respected name in the industry... BUCYRUS ERIE.

35E60

new 14-B





NEW! *from* **Mobile Drilling**

the **PITCHER SAMPLER***

*Patents applied for

recovers accurate samples from problem clays, shales and soft rock . . .

DRILLING FLUID CAN'T TOUCH SAMPLE . . .
In soft formations, the spring-loaded Shelby tube is pressed into formation *ahead of cutter barrel.* Sliding valve diverts drilling fluid from initial bottom flush to annular space around Shelby tube.

NO MORE CRUMPLED SHELBY TUBES . . .
In harder formations, cutter barrel telescopes over Shelby tube and cores out sample . . . *automatically protects tube from excessive pressures.*

NO NEED TO REMOVE CUTTING HEAD TO REPLACE SAMPLE TUBE

NO LOST TIME REAMING BETWEEN SAMPLES

Write or phone for details and prices . . .

MOBILE DRILLING, INC.
960 N. Pennsylvania St., Indianapolis 4, Indiana
Dept. 19 • Phone Melrose 4-6323

DEMING VERTICAL SUMP PUMPS

EASY AXIAL ADJUSTMENT

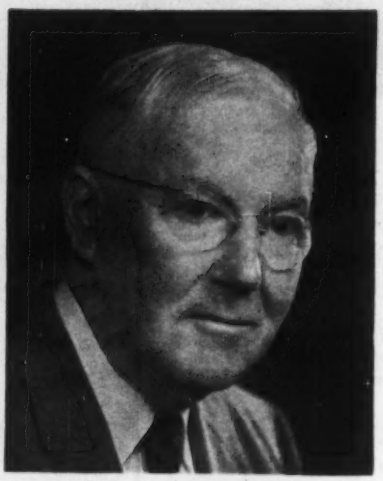
of shaft and impeller without removal or dis-assembly of other parts. Just adjust nut between flexible coupling and thrust bearing housing. Bulletin 4500-B.

Just one of many
Deming features that mean longer life and lower operating costs

Ask for a recommendation on your next project.

The DEMING Co.
704 BROADWAY • SALEM, OHIO

Obituaries



R. J. Cummins

Houston Consultant Dies; Aided Port Development

Robert J. Cummins, 79, a Houston engineer for 49 years has died.

He played a significant role in the phenomenal development of his city. Notable among his many construction jobs are the San Jacinto monument, the Houston Veterans Administration Hospital and the First City National Bank, now under construction.

Early in his career Mr. Cummins was engineer-advisor to the Reconstruction Finance Corporation on the Metropolitan Water District of Southern California and on the San Francisco-Oakland Bay Bridge.

He was a member of the Port Commission in Corpus Christi and Brownsville for 25 years and its chairman for 15 years.

In 1954 the American Society of Civil Engineers conferred one of its rare honorary memberships upon him for his work as a structural consultant.

Prof. Albert Haertlein, 65, Associate Dean of Engineering and Applied Physics at Harvard University. He was president of the Boston Society of Civil Engineers and Engineering Societies of New England and was director and vice president of the American Society of Civil Engineers. He had been a member of the State Board of Registration of Professional Engineers and Surveyors since 1942. Prof. Haertlein joined the Harvard faculty in 1928 and has been Gordon McKay Professor of Civil Engineering since 1940.

Joseph A. Richter, 69, Milwaukee civil engineer. He worked for the city before founding his own surveying firm, the Amon Survey Service.

TUNNEL PORTAL for two-lane vehicular traffic through mountainous San Gabriel Canyon.

INSIDE FLANGES of liner plates are bolted to the web of arch ribs. Erection of components is fast; fit is certain; and joining with quick-acting, coarse threaded bolts is positive and rapid.

"SAFETY FOR TRAFFIC" is spelled out in extra strength of COMMERCIAL's tunnel support system. Note: Posts set in unsupported roof section to receive future arch support as conditions may require.

How to Support Rock Tunnels in Earthquake Area

A major 10-tunnel highway project through a 6500 ft. mountainous terrain will soon speed up shipment of products from Antelope Valley to the nearby, fast growing Los Angeles market. Highway authorities have noted that motorists driving through those tunnels already completed in this frequently earth tremored area have a sense of safety reassurance due to the solid protective appearance of the exposed steel tunnel support system.

To keep the project rolling on schedule, the Los Angeles County Highway Department has specified COMMERCIAL steel ribs and liner plates. They know from past experience on other tunnel projects that all fabricated parts—ribs, liner plates, wall beams, posts and bolts—arrive on the job accurately fabricated to quickly "button up" the COMMERCIAL tunnel support system.

Fast erection of the steel supports in sections of the new 34 ft. wide, 2-lane tunnels is mighty important, too. Arch ribs and plates, sized for easy handling, are raised by a cable sling on a power shovel and set by crews working from a drilling jumbo. Two-piece arch ribs are placed with staggered joints at the crown. Liner plates have corrugations to give them added strength for lagging and their continuous inside flanges are bolted to the web of the ribs . . spaced on 3 ft. centers.

Back-packing is placed to fill all voids between the excavated rock and the liner plate lagging. Then grouting is pumped to fill all small voids in the back-packing. Thus, uniform loading is placed on the entire arch.

The full advantages of any COMMERCIAL tunnel support system start with COMMERCIAL's engineering assistance. With 35 years experience, they may well be able to help you speed up and simplify your next tunnel job, whether vertical, surface, sub-surface, soft or hard ground. For complete details, please write to Commercial Shearing & Stamping Company, Dept. E-29, Youngstown 1, Ohio.

COMMERCIAL
shearing & stamping

28 "EUCS"

BUILDING 11 MILLION YD. EARTH-FILL DAM

30 YD. BOTTOM-DUMPS ON LONG, HIGH SPEED GRAVEL HAUL...REAR DUMPS HANDLE BIG ROCK LOADS

Hills Creek Dam in western Oregon is part of the Willamette Valley Project under construction by the Corps of Engineers to provide flood control, navigation, power and irrigation. The embankment will require 11 million yards of earth and gravel fill and is scheduled for completion in 1961... it will be 2,400 feet in length and will have a maximum width of 1,600 feet at the base and 24 feet at the crest.

Green-Tecon, a joint venture of Green Construction Co., Des Moines, Iowa, and the Tecon Corporation of Dallas, Texas, have the earthmoving contract. These contractors are using a fleet of 28 Euclids on this big job . . . 13 Bottom-Dumps of 30 yd. and 7 of 17 yd. struck capacities and 8 Rear-Dumps of 22 and 27-ton capacities. The big "Eucs" work two ten-hour shifts six days a week... have marked up an excellent record of productive capacity and job availability.

Whether your operations involve big earthmoving projects like this one or small grading, stripping and industrial work, there's a Euclid model to match your requirements. Get all the facts and figures on the modern Euclid line of crawler tractors, scrapers, rear-dump and bottom-dump haulers from your Euclid dealer.

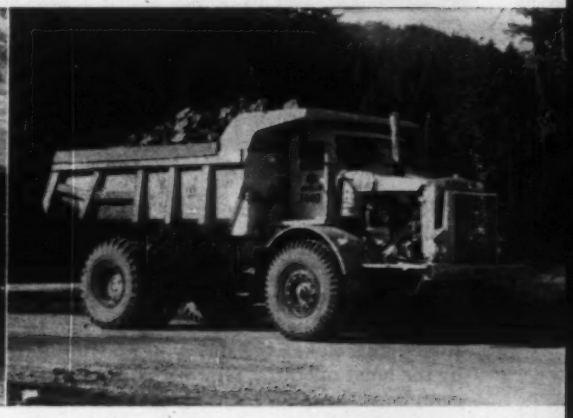
Six 27-ton and two 22-ton Rear-Dump "Eucs" haul rock from the quarry to the fill... all of these units are equipped with Torqmatic Drives and Torqmatic Brakes.

EUCLID Division of General Motors
Cleveland 17, Ohio

EUCLID (GREAT BRITAIN) LTD.
Lanarkshire, Scotland

A 7½ yd. dragline loads a Model LDT Bottom-Dump Euclid with 40 yds. of river gravel for 2½ mile haul to the fill. Green-Tecon have 13 of these big "Eucs" that are powered by 12 cylinder GM diesel engines of 432 h.p. with Torqmatic Drive.

Big loads of heavy gravel move over good haul roads at fast travel speed in these Bottom-Dump "Eucs". Torqmatic Drive — torque converter and semi-automatic transmission — provides full-power shift and a smooth flow of power to meet all road and grade conditions on the 5 mile cycle.



Well-maintained haul roads enable the Rear-Dumps to utilize their fast travel speeds on the 4500 ft. rock haul. On downgrades that are a maximum of 15% Torqmatic Brakes provide positive control of speed.

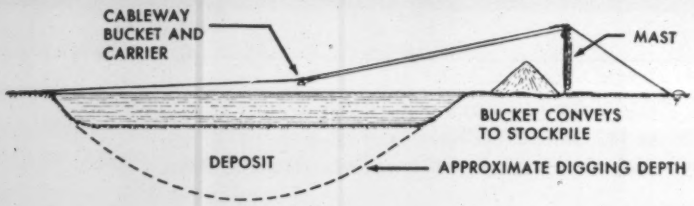
GM GENERAL MOTORS EUCLID

EUCLID EQUIPMENT

FOR MOVING EARTH, ROCK, COAL AND ORE

The Best Method for Digging Under Water is a Sauerman Slackline Cableway

. . . R. W. Bisett, Pres., Olean Gravel, Inc.



A Sauerman Slackline Cableway has been excavating material for Olean Gravel, Inc. since 1930. The 1½-yd. bucket has an operating span of 1200 ft., with an average haul of 900 ft. Depth of the pit is approximately 85 ft.

Due to the long haul and digging depth, Olean uses shovels at the shore line to supplement the Slackline and maintain the 200-tph. capacity of their new plant. Mr. R. W. Bisett, President, states:

"No one has yet come up with a better way of getting material from below the water line than Sauerman."

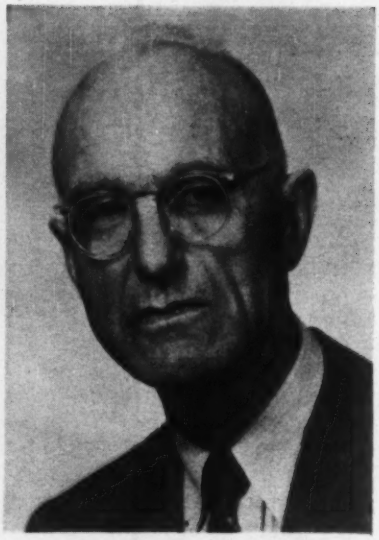
During freezing winter months when the plant is not operating, the Slackline Cableway is kept running to build a stockpile of material. A 110-ft. mast permits building the pile to a height of about 75 ft. All digging, elevating, conveying and dumping operations are handled by the hoist operator. Gravity return of the bucket to the excavation completes the fast operating cycle.

Where long range excavation or deep digging is required, it pays to use a Slackline Cableway. Contact Sauerman for specific recommendations on your job. Catalog C, *Slackline Cableways*, gives more information on this materials handling method.

SAUERMAN BROS., INC. 632 SO. 28th AVE. BELLWOOD, ILL.
LInden 4-4892 • Cable CABEX—Bellwood, Illinois

Crescent Scrapers • Slackline and Tautline Cableways • Durolite Blocks

. . . Obituaries



Jonathan Jones

Jonathan Jones Dies; Noted for Bridge Building

Jonathan Jones, retired chief of the fabricated steel construction division, Bethlehem Steel Co., is dead at the age of 78.

Mr. Jones, who retired in 1952, was born in Lewisburg, Pa., and attended the University of Pennsylvania where he recieved his M. S. degree in civil engineering in 1906.

In a 44-year career, Mr. Jones gained recognition as one of the foremost structural engineers in the country. He had direct engineering supervision of many major bridges in this country, such as the Golden Gate Bridge, the George Washington Bridge, the Chesapeake Bay Bridge and numerous lesser structures.

Among other honors conferred upon Mr. Jones, was honorary member of American Society of Civil Engineers. He was awarded an honorary degree as Doctor of Engineering from Lehigh University.

Renville S. Rankin, 68, retired sanitary engineer for Dorr-Oliver, Inc., Stamford, Conn. Since his retirement Mr. Rankin had served as a consulting sanitary engineer and as secretary of the Certification Board that administers examinations and entrance into the American Academy of Sanitary Engineers.

Parker Grimes, 50, chief of the planning branch power section in the engineering division of the Walla Walla Army Engineer district. He had been in charge of the power studies of lower Snake River dams now authorized and in various stages of construction.

Rebuilt with Zonolite® Fireproofing

...INSURANCE RATES CUT IN HALF!

Zonolite fireproofing in rebuilt shopping center at Ellinor Village is cuting costs each year, and giving owners extra protection.

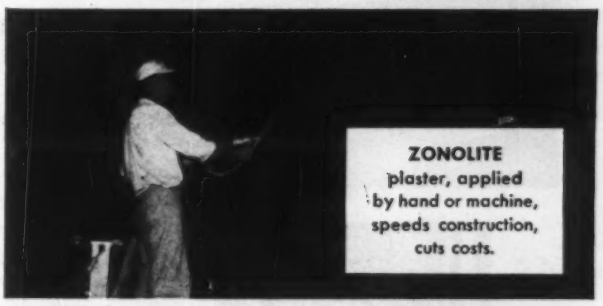
Ellinor Village, Ormond Beach, Fla., was fully insured, but the extra costs of carrying on after destruction like this are seldom even partially repaid.

Famous Florida Resort Will Get Back Fireproofing Costs in Five Years' Savings in Insurance!

An early morning "million dollar blaze" at Ellinor Village in 1957, caused such heavy damage that management decided to adopt every possible safeguard against similar losses in the future. "This was done so effectively," says General Manager E. B. McFarland, "that insurance rates were cut practically in half. Repair and maintenance will be almost nothing for years and insurance savings alone will repay the extra cost of effective fireproofing in five years.

"This," says Mr. McFarland, "was due in great part to extensive use of Zonolite vermiculite." Zonolite plaster was used on nearly 30,000 sq. ft. of walls and ceilings. Total cost compared favorably with sq. ft. costs for other shopping centers in the area. Why wait for disaster?

Zonolite fireproofing can often be used effectively to reduce fire hazards in existing structures and should get your full consideration for all future construction. So get all the facts...mail the coupon today.



ZONOLITE
plaster, applied by hand or machine, speeds construction, cuts costs.

ZONOLITE COMPANY

DEPT. ENR-70
135 South La Salle Street, Chicago 3, Illinois

ZONOLITE COMPANY, Dept. ENR-70
135 South La Salle Street, Chicago 3, Illinois

Please rush booklet PA-41 on Zonolite Plaster Fireproofing

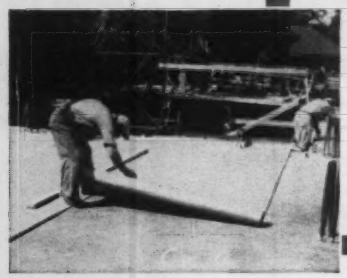
NAME _____ TITLE _____

FIRM _____

ADDRESS _____

CITY & ZONE _____ STATE _____

For Every Moisture Problem There's a Sisalkraft Product That Does the Job ...Saves You Money

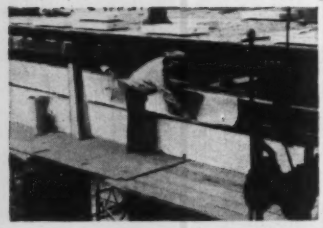


SISALKRAFT, tough, reinforced waterproof papers for protecting floors, curing concrete, covering unfinished work on the job. In fact, any application requiring protection against the weather.

MOISTOP — a reinforced paper-polyethylene laminated vapor barrier. Provides complete, permanent protection against moisture infiltration through floors, whether slab on ground, below grade or in crawl spaces.

VAPORSTOP — a low cost vapor barrier for under slabs. Tough and strong for application without rips or tears. Fungicide treated to resist rot and decay.

COPPER ARMORED SISALKRAFT, a sheet of pure copper laminated to reinforced kraft. Permits the use of pure, permanent, waterproof copper at lowest cost. For all concealed flashing and waterproofing.



SISALATION — a reinforced reflective insulation and vapor barrier for sidewalls, ceilings and floors. Low in cost — protects against condensation — saves heat in winter — provides summer comfort.

A selection of flexible and semi-rigid, clear plastic films are also available in a variety of widths. A new line of vapor barriers is now being manufactured — called Pyro-Kure, these products are flame resistant and carry the UL label.

SISALKRAFT

AMERICAN SISALKRAFT CORPORATION
Chicago 6 • New York 17 • San Francisco 5
In Canada: Murray-Brantford Ltd., Montreal

reinforced paper, foil and plastics for construction, industrial packaging and agriculture

What Does a Contract Mean?

Courts take a number of factors into consideration in determining the meaning of contracts. The controlling factor is the intention of the parties as revealed by the written contract as a whole.

Here are some specific guidelines in general use:

A contract is to be construed as a whole, giving meaning and effect to every provision thereof, if possible, since it will be presumed that everything in the contract was inserted deliberately and for a purpose. The intention of the parties to a contract is not to be gathered from detached portions of their contract or from any clause or provision standing by itself, but each part should be viewed in relation to the whole.

The primary object of construction of a contract is to give effect to the intention of the parties, greater regard being given to such intent, when clearly revealed, than to any particular words used. In general, the intention of the contracting parties is to be determined from the final agreement executed by them, rather than from preliminary negotiations and agreements, although previous agreements, negotiations and circumstances may be considered in determining the meaning of words.

In every contract there is an implied covenant of good faith and fair dealing between the parties to it, and where an instrument is susceptible to two conflicting constructions, one of which imputes bad faith to one of the parties and the other does not, the latter construction should be adopted.[1]

Agreements must be enforced as written. In construing a contract, courts concern themselves with what the parties intended, but only to the extent that they evidenced what they intended by what they wrote. Courts will not make a new contract for parties under guise of interpreting the written instrument. The intent of the parties where the contract is written, is ineffective unless expressed in writing. Where the contract as signed does not clearly express the agreement, the same may be reformed, but, until reformed, it is the duty of the court to enforce it according to its terms.[2]

Where parties after execution of an agreement by their statements and conduct place a definite interpretation upon it, such interpretation binds them.[3]

(1) Martindell et al. v. Lake Shore National Bank, 154 N.E. 2d 683.
(2) J. Friedman Const. Co. v. North Lake Estates, 177 N.Y.S. 2d 431.
(3) United States v. Fallbrook Public Utility District et al. 165 F. Supp. 806.

Court Allows Six Years to Sue

In an action for damages resulting from errors on the part of engineers and surveyors in the preparation of a map, the six-year statute of limitations as to contracts applies rather than the three-year one applicable to negligence actions.

That is the rule in New York, according to the following decision:

An action was brought by engineers and surveyors against landowners for compensation for the value of work performed in preparing corrected drainage maps. The landowners counterclaimed for damages resulting from alleged errors made by the engineers and surveyors in making prior drainage maps for the prior owner. The counterclaim was dismissed by the trial court on the ground that the three-year statute of limitations was applicable, since the action was based on negligence. This judgment was reversed on appeal, the appellate court[1] holding that the action was based on breach of contract.

Another point raised by the engineers and surveyors was that their original contract was with another party and not the present owner who had employed them to revise the plans. They claimed the present owner had no basis for the counterclaim.

As to this phase of the litigation, the court pointed out that the New York Real Property Law, Nassau County, Section 334-a, requires a developer of land for division into lots, plots, blocks or sites, with or without streets, to file a map containing courses, measurements, and the names of adjoining property owners with sufficient definiteness. The Clerk of the County of Nassau is required to file that map upon receipt thereof. A provision is set forth subjecting an owner of lands to a penalty because of a failure to do so.

The court held that the purchasers of the land had a right to rely on such plans and were third party beneficiaries who could bring an action for damages resulting from mistakes in the plans.

(1) Vandewater & Lapp v. Sacks Builders, Inc., 186 N.Y.S. 2d 103, N.Y. Supreme Court, Appellate Term, April 27, 1959.

Valid Contract Formed By Offer and Acceptance

An offer and acceptance constitute a valid contract even though they have not been reduced to writing.

The rule was recently applied by a New York court in a dispute between a general contractor and a sub over work on a school construction job.

Before submitting its bid for the general contract, the contractor obtained by telephone a $35,397 bid for the lathing and plastering work. The bid was later confirmed by the subcontractor by letter and was accepted by the general contractor.

After the general contract was awarded, the subcontractor insisted that the general contractor furnish a hoist. The general contractor, in a subsequent purchase order, offered to cooperate if a hoist were available at the site but it did not agree to furnish one.

No hoist was available and the subcontractor refused to perform. The general contractor subcontracted the work to another for $50,000 and sued the original sub for $14,603—the difference between the original bid and the second one. It obtained a judgment which was affirmed on appeal.[1]

The appellate court stated: "Apellant (subcontractor) seems to suggest that the acceptance of April 7, 1955, was not intended or treated by respondent (general contractor) as completing a contractual arrangement since respondent later submitted a so-called purchase order which, in appellant's view, was intended by respondent to constitute the contract. If this was the intended effect of the purchase order, appellant is in no way aided thereby as a contract arising out of an offer and acceptance will be recognized in the event it is not followed by the written contract contemplated at the time, provided the terms originally assented to are, as here, sufficiently definite. Sanders v. Pottlitzer Bros. Fruit Co., 144 N.Y. 209, 39 N.E. 75, 29 L.R.A. 431; Pratt v. Hudson River R. Co., 21 N.Y. 305."

(1) John W. Rouse Construction Corp. v. Albany Acoustical Corp., 189 N.Y.S. 2d 532, N.Y. Supreme Court, Appellate Division, Aug. 13, 1959.

These summaries of court decisions are prepared by I. Vernon Werbin, Esq., New York attorney and licensed professional engineer, who is author of the following books published by McGraw-Hill Book Company, Inc.: *Legal Phases of Construction Contracts; Legal Guide for Contractors, Architects and Engineers; and Legal Cases for Contractors, Architects and Engineers.*

SEE THESE McGRAW-HILL BOOKS 10 DAYS FREE

BUILDING CONSTRUCTION HANDBOOK

A practical manual by 25 authorities on the **how** and **why** details of design and construction. 29 sections cover all phases of construction—from selecting an architect to insurance and bonds; on all kinds of buildings—from houses to office buildings and factories. Data on materials, services, specifications, bids, etc. **Edited by F. S. Merritt, Senior Editor,** *Engineering-News-Record.* **851 pp., 428 illus., 183 tables. $15.00**

PLUMBING, HEATING AND PIPING ESTIMATORS' GUIDE

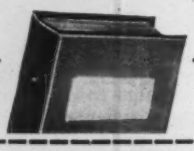
Just Published. Shows how to make complete, accurate estimates in all areas of plumbing, heating and piping work. 75 "labor factor" tables pinpoint the various elements of work involved. Explains specific cost analysis methods which enable you to check your final bid against the original estimate. **By Paul G. Davis, Supervisor of Mechanical Work, Gamble, Pownall, and Gilroy. 208 pp., 94 tables and illus., $6.50**

CATHODIC PROTECTION

Just Published. A practical guide to combating corrosion of underground and submerged structures. Explains the chemistry of metals when surrounded by an electrolyte such as water or moist earth, and details the practical methods of applying electric currents to mitigate damage under these conditions. Shows how to protect submerged pipelines, cables, aviation fuel tank and line systems, lock and dam gates, ships in storage, and other structures. **By Lindsay M. Applegate, Lt. Col., AUS (retired). 244 pp., 67 illus., $9.00**

HIGHWAY ENGINEERING HANDBOOK

Just Published—A comprehensive handbook on modern highway engineering—covering the entire field from financing and planning, to construction and maintenance. Its 28 big sections—each prepared by a specialist—treat such topics as administration, route selection and layout, soil mechanics, highway materials, rigid and flexible pavements, and more. **Edited by K. B. Woods, Highway Design Consultant. 1696 pp., 672 illus., $25.00**



MAIL THIS COUPON

McGraw-Hill Book Co., Dept. NR-7-14
327 W. 41st St., New York 36, N. Y.

Send me book(s) checked below for 10 days' examination on approval. In 10 days I will remit for book(s) I keep, plus few cents for delivery costs, and return unwanted book(s) postpaid. (We pay delivery costs if you remit with this coupon—same return privilege.)

☐ Merritt—**Bldg. Const. Hndbk., $15.00**
☐ Davis—**Plumbing, Heating & Piping Estimators' Guide, $6.50**
☐ Applegate—**Cathodic Protection, $9.00**
☐ Woods—**Highway Eng. Hndbk., $25.00**

(PRINT)
Name .....
Address .....
City .....Zone ....State .....
Company .....
Position .....

For price and terms outside U. S. write McGraw-Hill Int'l N.Y.C. NR-7-14

Water Main Is Bid Three Ways

Contractors priced three pipe alternates for the 61,530 lin ft of 36-in. transmission main for the Erie County Water Authority's Sturgeon Point Project near Buffalo, N. Y. Buck, Seifert & Jost, New York City, is the consultant.

The award at $1,758,005 went to Fago Bros. Contracting Co., Tonawanda, N. Y. on the prestressed concrete steel cylinder pipe. All ten competing bidders priced this alternate. Only five priced the cement mortar-lined, coal-tar-enamel coated and wrapped steel pipe alternate, and the coal-tar-enamel lined, coal tar coated and wrapped steel pipe alternate. The low price of $22.90 a lin ft for the prestressed concrete steel cylinder pipe was placed by Schwab Bros. Trucking Inc., second low contract bidder. This was 10 cents under Fago's bid. Other prices on this pipe ranged from $23.70 to a high of $30.70 a lin ft.

Work includes connections to existing work; eight street, nine stream, five railroad and one culvert crossings; and other related work and appurtenances.

Prevailing wages include: carpenter, $3.935; crane & power shovel operator, $3.835; tractor operator, $3.67; pipe layer, $3.035; common laborer, $2.935.

Liquidated damages are engineering costs.

The bidding on the three alternates for this water transmission main included:

Alternate A 36" Prestressed Concrete Steel Cylinder Pipe

1C	Fago Bros. Contr. Co., Inc., Tonawanda	$1,758,005
2	Schwab Bros. Trucking Inc., Tonawanda	1,874,107
10	W. W. Kimmins & Sons, Inc., Kenmore, N. Y.	2,516,476

Alternate B 36" Cement-Mortar-Lined, Coal-Tar-Enamel Coated and Wrapped Steel Pipe

1	Fago Bros. Contr. Co., Inc	$2,127,185
2	Schwab Bros. Trucking, Inc	2,218,675
5	W. W. Kimmins & Sons, Inc	2,756,443

Alternate C 36" Coal-Tar-Enamel Lined, Coal Tar Coated and Wrapped Steel Pipe

1	Schwab Bros. Trucking Co., Inc	$1,837,189
2	Fago Bros. Contr. Co., Inc	1,881,065
5	W. W. Kimmins & Sons, Inc	2,590,312

Bids: 4-14-60

Items	Unit	Quantity	Unit Prices 1C	2
Steel transm main pipe, 36" incl fitgs & access, exc, bkfl, furn, haul & lay:				
alt. A, prstr conc cyl	lf	61,530	$23.00	$22.90
alt. B, cmt-mortar-lined, coal-tar enam ctd & wrapped	lf	61,530	29.00	28.50
alt. C, coal-tar-enam lined, coal-tar ctd & wrapped	lf	61,530	25.00	22.30
Blowoff pipe, incl exc, bkfl, furn, haul & lay:				
CIP, 8" discharge	lf	450	8.00	8.00
12" riser	lf	280	12.00	12.00
Connections, incl haul & place matl & conn to exist work: cone vlv vault at Windom Reservoir	ls	job	190.00	1,000
16" wat main, Walden Ave	ls	job	2,650	10,000
Depew Reservoir	ls	job	4,600	4,000
16" wat main adj to cone valve vault	ls	job	2,950	10,000
16" high pressure service	ls	job	2,400	7,000
Xings, incl haul & pl matl & constr, street, at Lake Ave.	ls	job	4,000	4,000
Orchard Park rd	ls	job	10,500	10,500
Clinton Rd	ls	job	4,000	4,000
William St	ls	job	3,000	3,000
Transit Rd	ls	job	6,800	6,800
Como Park Blvd	ls	job	3,300	3,300
Broadway	ls	job	6,400	6,800
Walden Ave	ls	job	5,400	5,400
stream at sta 28+50	ls	job	500.00	2,000
173+75	ls	job	300.00	900.00
180+80	ls	job	300.00	900.00
214+50	ls	job	8,365	80,000
302+00	ls	job	300.00	900.00
374+70	ls	job	1,500	13,500
401+80	ls	job	500.00	2,400
436+90	ls	job	300.00	900.00
553+00	ls	job	2,500	15,000
Penn RR at sta 298+50	ls	job	14,300	13,000
Lehigh Val at sta 580+25	ls	job	10,010	9,100
Erie RR, at sta 587+45	ls	job	7,700	7,000
DL&W at sta 590+05	ls	job	10,450	9,500
NYC RR at sta 595+50	ls	job	20,900	19,000
Culvert, at sta 65+00	ls	job	1,825	960.00
Gate vlv & vault, 30", pipe & appurtenances f,h,p&c	ea	7	8,250	3,500
Manholes, access f,h,p&c	ea	9	400.00	400.00
air relief f,h,p&c	ea	29	500.00	400.00
comb air relief & access f,h,p&c	ea	3	500.00	500.00
Blowoff assemblies f,h,p&c	ea	30	590.00	500.00
Excavation, rock	cy	2,000	1.00	17.00
earth added	cy	1,000	2.50	1.00
Conc masonry, cl A	cy	30	60.00	60.00
cl B	cy	850	45.00	51.00
Stl reinf, add or omit	lb	1,000	0.18	0.10
Brk or conc msnry, add or omit	cy	5	100.00	100.00
Exc, line cutting, repl pvmt & spec surfacing:				
2 crse asph conc pvmt	sy	410	5.00	10.00
bit pvmt on private drwys & areas	sy	1,200	6.00	10.00
conc pavement	sy	220	10.00	10.00
Fndns, bkfl & other purposes, furnish & place:				
select earth fill	cy	100	1.50	10.00
gravel	cy	600	5.00	10.00
lean conc mix, 1:10	cy	700	20.00	20.00
1:15	cy	100	19.00	20.00
Lumber in foundation	Mfbm	1	150.00	500.00
Sheeting left in place	Mfbm	1	135.00	500.00
Vlv & meter vault at Depew Reserv f,i&c	ls	job	19,850	25,000
Trees, replace	ea	200	45.00	15.00

f,h,p&c Furnish, haul & place matls, & construct.
f,i&c Furnish, instal & construct.

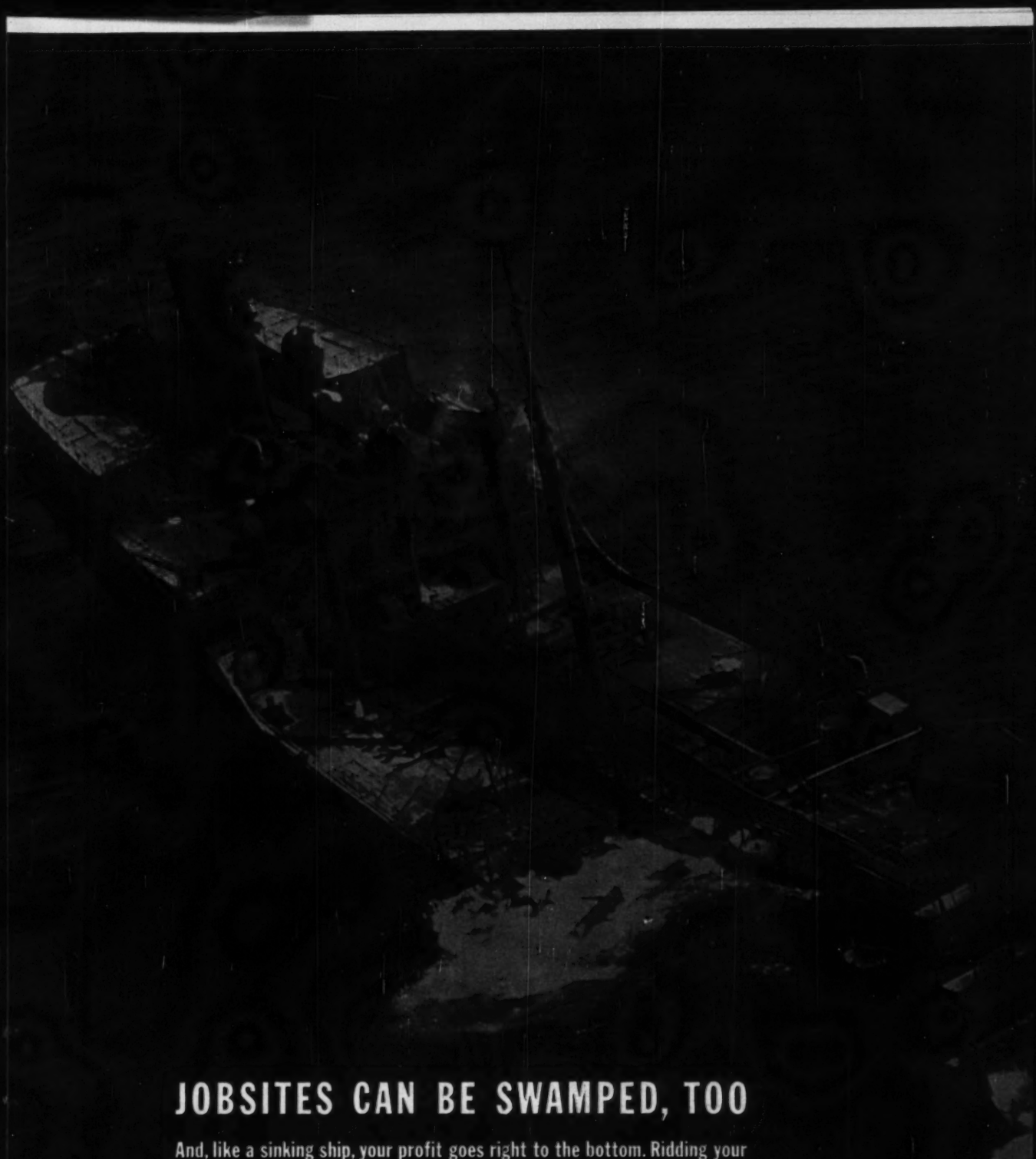
Awarded May 4. Completion schedule: 175 cal days.

Cost per Mile for Wisconsin Highways

On work completed in 1959 and carried over to 1960

	1958 work carried over to 1959		1959 work carried over to 1960		Work completed in 1959	
	Miles	Cost/Mi	Miles	Cost/Mi	Miles	Cost/Mi
Concrete surfacing	109	$113,960	16.794	$109,604	156.69	$114,058
Concrete base course	13	47,808	1.132	140,150	15.02	59,552
Bituminous concrete	195	27,555	104.881	22,304	443.40a	24,579
Plant mix bit surf, single aggr	47	9,768	47.246	13,223	96.92	13,283
Bituminous surfacing, road mix	73	5,200	61.833	4,571	196.92	5,294
Grade & drain	289	36,508	204.829	48,894	578.46	36,914
Subbase	247	7,809	114.561	7,939	492.86	6,153
Gravel or crushed stone base	448	13,021	232.027	13,762	855.29	12,176

a Incl shoulders & service roads

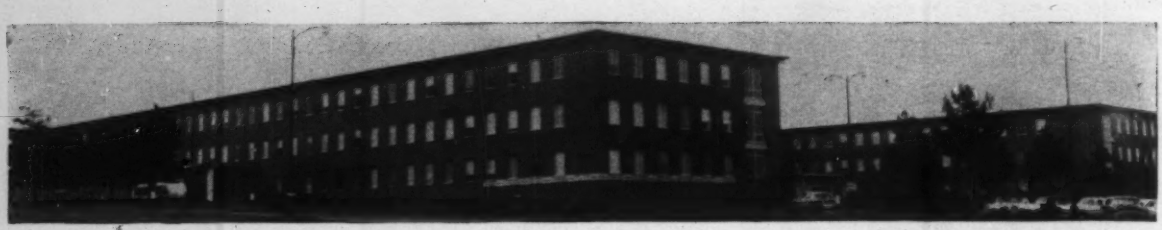


JOBSITES CAN BE SWAMPED, TOO

And, like a sinking ship, your profit goes right to the bottom. Ridding your job of unwanted ground water is the specialty of the STANG Corporation. We can dewater your job site, regardless of its type or size, and bring your profit back to dry land.

JOHN W. **STANG** CORPORATION · 8221 ATLANTIC AVE. · BELL, CALIFORNIA

OMAHA · TACOMA · TULSA · MINNEAPOLIS · MOBILE · ST. PETERSBURG

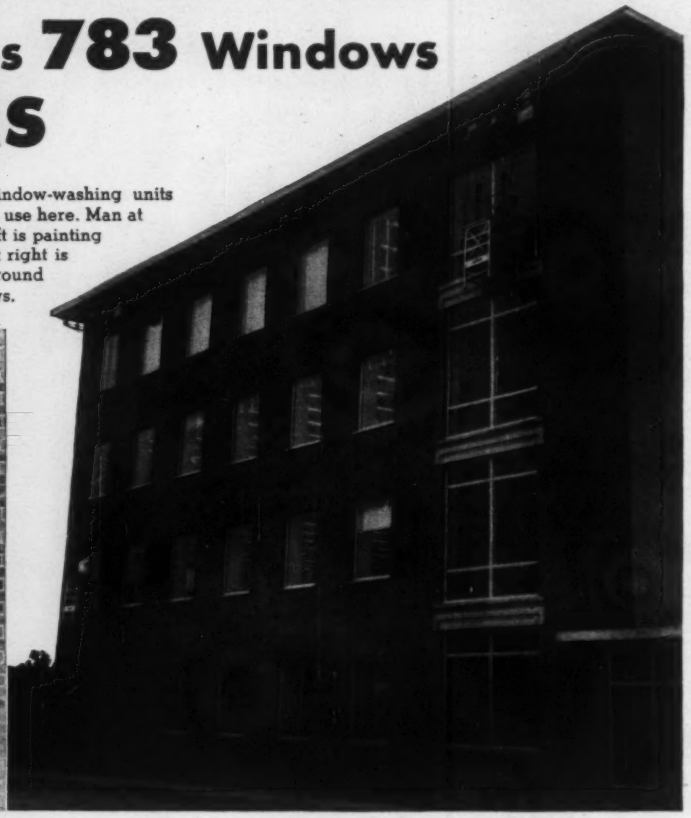


View of part of building served by the Cleveland Tramrail window washing and building maintenance system. This is in a large, beautiful campus-like setting.

One Man Washes 783 Windows In 30 HOURS

The window washer works speedily and safely in this cage. By depressing push buttons in cage, he can move to any part of building. There is no disturbance to delay busy people inside.

Both of window-washing units are seen in use here. Man at extreme left is painting and man at right is caulking around the windows.



ALL the windows in a large office building, housing over 3000 people, are kept sparkling clean by one man. All of the 783 windows are 5'0" x 7'0", except those at the stair wells, which are larger. They are of single light design, sealed solidly into the frames and cannot be opened.

Most of the building is three stories high, but some sections are four stories. To obtain large window exposure, the building is of multiple or joined-H design. The entire building has a 36 inch roof overhang into which is secured the hanger rod supports for the Cleveland Tramrail track which completely encircles the building, the trackage being approximately 2900 feet long.

There are two motor-driven window washing units. All operations are controlled from the cage of each. The washer may travel in either direction along the building wall and raise or lower himself to any level. Obviously he can move from window to window quickly and tirelessly.

The Tramrail system was very helpful during construction of the building. It greatly speeded window installation, caulking and painting. In addition to providing safe window cleaning at very low cost, the system is of course useful for all outside wall maintenance.

Write for free illustrated booklet No. 2022

CLEVELAND TRAMRAIL

Overhead Materials Handling Equipment

CLEVELAND TRAMRAIL DIVISION • THE CLEVELAND CRANE & ENGINEERING CO. • 3153 E. 290 ST. • WICKLIFFE, OHIO

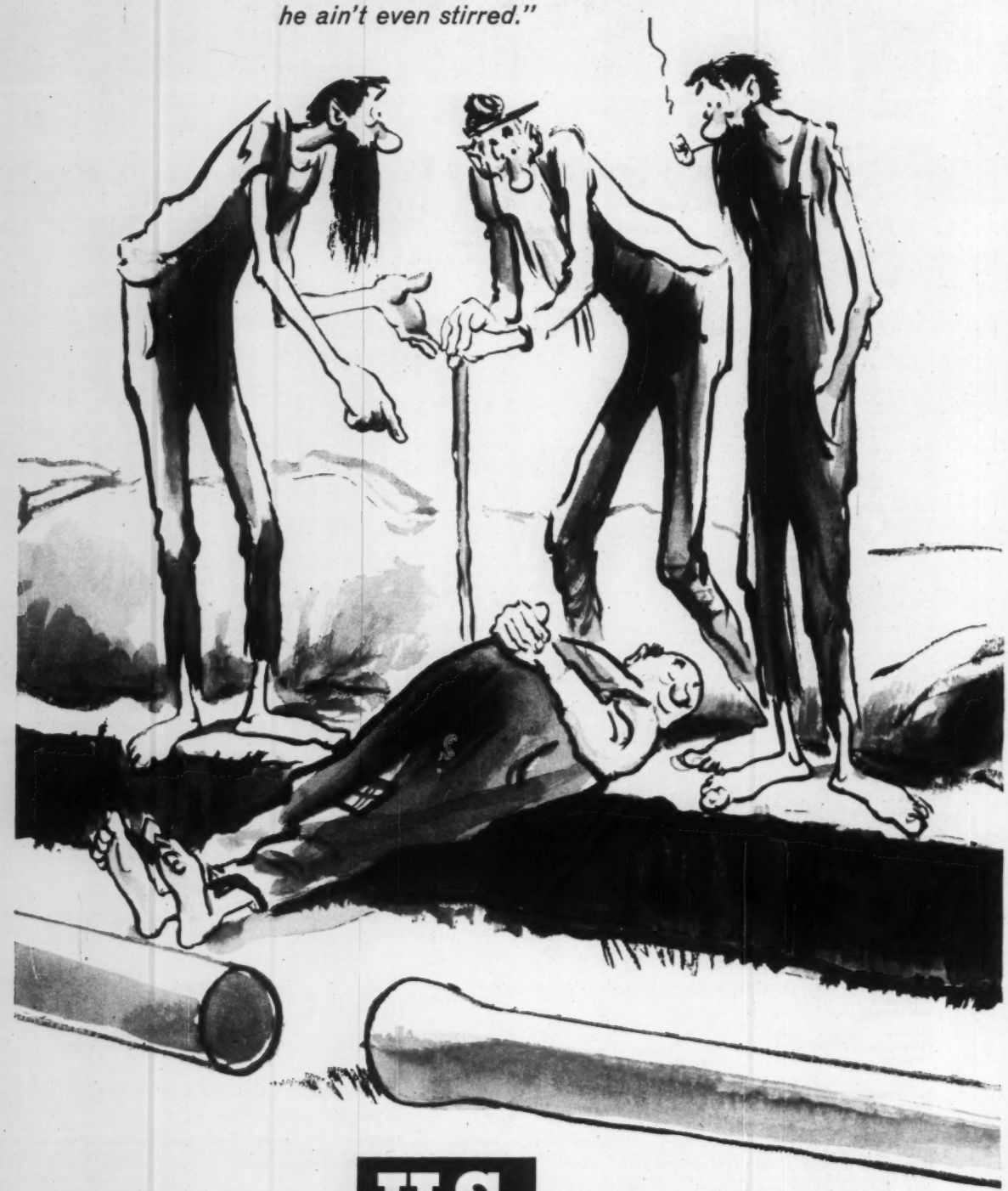
Materials Prices

Monthly Market Quotations by ENR Field Reporters

IRON AND STEEL PRODUCTS—PER 100 LBS. BASE MILL PRICES

	STRUCT SHAPES—	PLATE CARBON STEEL	REINF BARS* billet	RIVETS ½-in. structural	SHEET PILING Base	STEEL RAILS Per Net Ton Standard	STEEL RAILS Per Net Ton Light	TRACK SUPPLIES Angle Bars	TRACK SUPPLIES Std Spikes	TRACK SUPPLIES Tie Plates	TRACK SUPPLIES Track Bolts
Birmingham Area	$5.80	$5.80	$5.675	$12.25	.....	$110.80	$130.00	$6.975	$9.75	$6.60	.....
Chicago Area	5.80	5.30	5.675	12.25	$6.60	110.80	130.00	6.975	9.75	6.60	.....
Pittsburgh Area	5.80	5.30	5.675	12.25	6.60	110.80	130.00	6.975	9.75	6.60	$14.75
Buffalo Area	5.80	5.30	5.675	12.25	6.60	110.80	130.00	6.975	9.75	6.60	14.75
Cleveland	.....	.....	5.675	12.25	6.60	.....	.....	.....	.....	.....	14.75
Youngstown Area	.....	.....	5.675	.....	.....	.....	.....	.....	9.75	.....	.....
Geneva	5.80	5.80	.....	.....	.....	.....	.....	.....	.....	.....	.....
Los Angeles	6.30	.....	6.375	.....	6.80	.....	.....	.....	.....	.....	.....
Pueblo	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
								.....	.....	.....	.....
								.....	.....	.....	.....

"First we thought we'd have to move Oncle Bull but Tyton lays so easy he ain't even stirred."



U.S. cast iron PIPE FOR WATER, SEWERAGE AND

no fuss, no muss, no cuss!

Fact! Not a worry in a workload with Tyton Joint® pipe. This easy-going pipe is so easy to assemble . . . lays so fast your ditcher has to step on it to keep ahead.

Tyton® is so simple. Only one accessory needed. No bell holes. No caulking equipment. No nuts or bolts to fasten. Minimizes weather worries too. You can lay Tyton in rain or wet trench. That means more working days, more production, lower installation cost.

Get the facts on time, money, trouble-saving Tyton Joint pipe. You'll sell yourself. Call or write today.

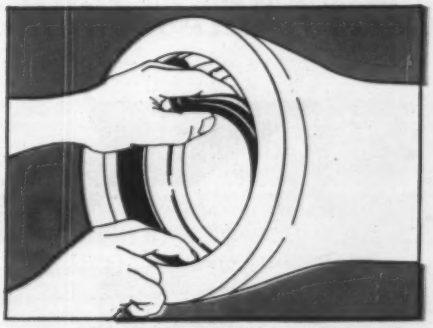
U.S. PIPE AND FOUNDRY COMPANY
General Office: Birmingham 2, Alabama

A Wholly Integrated Producer from Mines and Blast Furnaces to Finished Pipe.

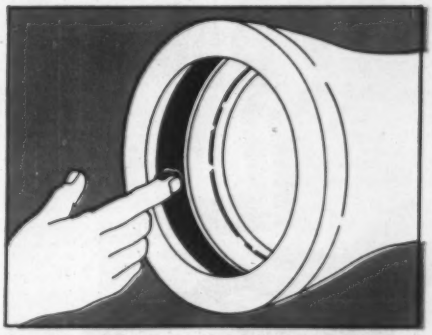
INDUSTRIAL SERVICE ® CAST IRON

TYTON®

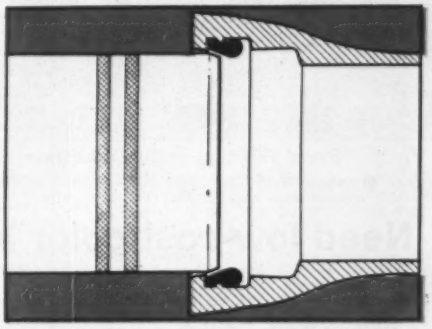
ONLY FOUR SIMPLE ACTIONS



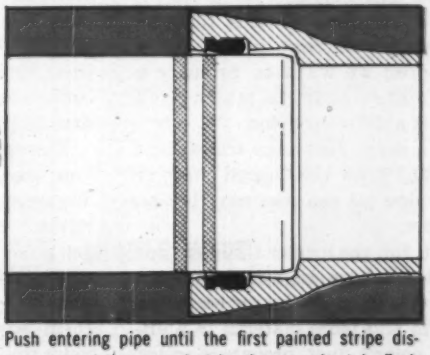
Insert gasket with groove over bead in gasket seat . . . a simple hand operation.



Wipe film of Tyton Joint® lubricant over inside of gasket. Your receiving pipe is ready.



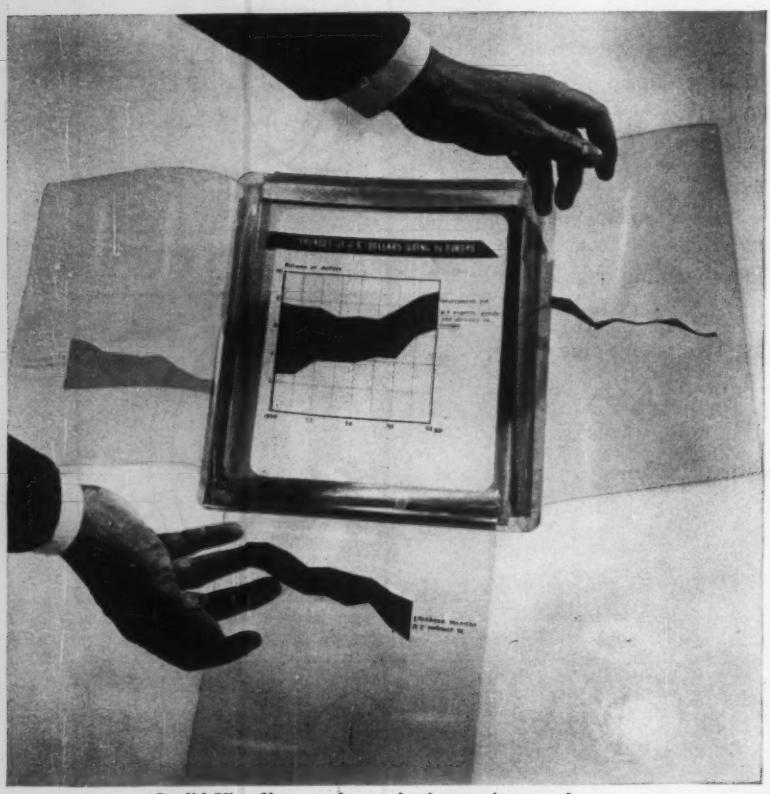
Insert plain end of entering pipe until it touches gasket. Note two painted stripes on end.



Push entering pipe until the first painted stripe disappears and the second stripe is approximately flush with bell face. The joint is sealed . . . bottle-tight, permanently! The job's done . . . . fast, efficiently, economically. Could anything be simpler?

OZALID NEWSLETTER

NEW IDEAS TO HELP YOU WITH ENGINEERING REPRODUCTION AND DRAFTING



Ozalid Viewfilms produce color images in seconds . . . and at lower cost than conventional methods.

Need low-cost color in a hurry?

Four-color, three-color, or even two-color for that matter . . . no problem; Ozalid's Viewfilms provide the perfect low-cost answer.

Suppose we want to produce a performance chart in which each factor is a different color.

It's a snap. Just take translucent paper and draw the desired curve or dotted line (as the case may be) on the sheet.

Next, run the master through your Ozalid machine together with an Ozalid Viewfilm of the proper color. Want to add more material in a different color? Just prepare another master, select a different colored film, and run them as you did the first pair. When you're all through, overlay the films in sequence and tape them into register. Your result is a composite color chart that's very dramatic . . . very convincing!

This is just one illustration to start your mental salivary glands working. We are sure that you can find uses we haven't even dreamed of, once you get going. And if you discover any new applications for this best of all possible color worlds, tell us about them so we can spread the good news to others.

When it comes to cost estimating . . .

. . . there's nothing like a handy whiteprinter to cut preparation time of cost estimates, according to the Stackpole Carbon Company, St. Mary's, Pa. The company's Supervisor of Cost Estimating has just written us a letter on the subject which we pass on to you verbatim. "Our estimates are made in pencil on printed translucent vellum in pad form. These are reproduced on specially cut and punched Ozalid copy paper. Originals carry only basic information that has to remain constant. And from the originals we produce duplicate originals on Ozalid sepia line intermediate paper (#402 IT) as required, and these are used until the basic information is obsolete. To revise a cost, it is only necessary to add current rates and extend. With this simple Ozalid method we have eliminated typing, proofreading, and copying errors."

The Supervisor goes on to say that Stackpole uses Ozalid copying in many other areas of its business because of convenience and economy. Perhaps we'll be able to tell you about these uses in a future *Newsletter*.

Here's what 100 usable feet per minute can do for you

Speed up your production? Of course! But that's only the beginning. Look at it this way. One Printmaster 1000® working at a usable 100 feet per minute matches the output of several smaller, slower machines *but takes up less valuable floor space while handling widths up to 54 inches!* You save on production time and costs due to higher working speeds! And the Printmaster 1000 is probably the toughest, most durable unit ever produced. This means even greater savings in downtime and service charges. Our first recommendation for any shop having heavy work loads is this 100-foot champ . . . the Printmaster 1000.

***Ozalid**—Division of General Aniline & Film Corp.• In Canada: Hughes-Owens Co., Ltd., Montreal*

Construction Reports

Bids Asked—Low Bidders—Contracts Awarded—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager J. A. MAHONEY, M. WETZEL, M. E. SCIORRA, MARIE MORAVSIK, ELAINE CHOMYAK, ELIZABETH WERRA, ELEANOR QUERET, Reports, J. H. WEBBER, E. R. HUBER, Statistics.

CALLING FOR BIDS

NEW ENGLAND

HEAVY CONSTRUCTION—BA

Massachusetts—BA 7/20—Commonwealth of Mass., Metropolitan Dist. Comn., Constr. Div., 20 Somerset St., Boston, Contr. 24B, Section V, wid'n., deepening channel, Town Line Brook Flood Control Proj. Malden. $160,000. Plans deposit $25.

† **Connecticut**—ANTI-INTRUSION SYSTEM—BA On Or About 8/3—U. S. Eng., 187 Westminster St., Providence, R. I., anti-intrusion system in Launcher Area, NIKE Battery 48, Middletown, ENG-19-016-61-3. $10,000.

BUILDINGS—BA

† **Conn., Windsor** — BLDG. 24 — BA 7/21 — U. S. Atomic Energy Comn., Bldg. No. 1, SIC Prototype site, Prospect Hill Rd., Windsor, Inv. No. AE 60-SCH-428. $150,000. CD 11/9/55.

▲ **Mass., North Adams**—HOUSING—BA 8/2—City Housing Auth., 30 Catherine St., housing. $1,000,000. Plans deposit $75. Arthur F. Eldridge, 85 Main St., North Adams, Mass., archt. CD 11/13/58.

▲† **Conn., Groton**—HOUSING—BA 8/7—Area P. Wks. Office, Room 633, Federal Office Bldg., 90 Church St., New York, N. Y., 500 unit 1 story, ranch type frame dwellings, incl. plumbing, heating, electrical system, drainage, sewage, water systems, roadwork, Capehart Housing Project, Second Increment, U. S. Naval Base, Spec. No. 31970-60. Plans deposit $200.

HEAVY CONSTRUCTION—LB & CA

† **Seaboard Engineering Co., Inc.**, 65 Commercial St., South Portland, Me., LB **$566,974**, est. $617,230, FD. radar facilities, Bucks Harbor Air Force Station, ENG-19-016-60-81, BUCKS HARBOR, ME. U. S. Eng., 424 Trapelo Rd., Waltham, Mass. Bids June 28. CD 6/8.

NEW HAMPSHIRE—Dpt. P. Wks. & Hys., Concord, Bids opened 6/23,

E. V. Del Duca Constr. Co., Inc., 290 Broadway, Methuen, Mass., LB **$658,134**, hot b. conc. roadway, two 127 ft. and 134 ft. 3-span steel beam bridges on 0.464 mi., Salem, Rockingham Co. CD 6/16.

▲ **NEW HAMPSHIRE**—Dpt. P. Wks. & Hys., Concord, **M. DeMatteo Constr. Co.**, 200 Hancock St., Quincy, Mass., CA $1,055,420, hot b. conc. roadway and four (159 ft., 153 ft., 146 ft. and 151 ft.) steel beam bridges on 0.568 mi., Salem, Rockingham Co. Bids May 12, awarded May 27. CD 5/23, under LB.

BUILDINGS—LB & CA

▲ **Poley-Abrams Corp.**, 45 Bartlett Crescent, Brookline, Mass., CA **$1,500,000**, Midtown MOTOR INN, 220 Huntington Ave., BOSTON, MASS. The Church Realty Trust, 15 Norway St., Boston, Mass. Bids May 24. CD 5/17.

▲ **Wadhams & May Co.**, 15 Lewis St., Hartford, Conn., CA **$1,092,000**, Junior-Senior High SCHOOL, COVENTRY, CONN. Town School Bldg. Comn., Town Hall, Coventry, Conn. Bids June 21. CD 6/23, under LB.

DeLuca Constr. Co., 27 Crescent St., Glenbrook, Conn., CA $405,000, 2 story, masonry, fireproof MOTEL, Stamford, CONN. Roger Smith Motor Inn, River St., hotel addn. Bids June 4, awarded June 28. CD 4/13.

▲ **Felix Buzzi & Son, Inc.**, 612 S. Main St., Torrington, Conn., CA **$1,000,000**, 2 story, 42,000 sq. ft., brick, stone, TELEPHONE building, Sedgwick Rd., WEST HARTFORD, CONN. Southern New England Telephone Co., 227 Church St., New Haven, Conn. Bids June 16, awarded June 28. CD 6/28, under LB.

MIDDLE ATLANTIC

BUILDINGS—BA

▲ **N. Y., Brooklyn**—SCHOOL—BA 8/4—Supt. Design, Constr. and Physical Plant, Bureau of Constr., 4th Fl., 42-15 Crescent St., Long Island City, Zone 1, general contract, plumbing and drainage, heating and ventilating, electrical work and lighting fixtures P. S. 257 Humboldt St. between Varet and Debevoise Sts., Brooklyn Boro. Plans deposit $25 general $10 each mechanical trades. CD 1/25.

▲ **N. Y., New York**—SCHOOL—BA 8/4—Supt. Design, Constr. and Physical Plant, Bureau of Constr., 4th Fl., 42-15 Crescent St., Long Island City, Zone 1, general contract, plumbing and drainage, heating and fixtures P. S. 84, W. 91st and W. 92d Sts., Central Park West, Manhattan Boro. Plans deposit $25 general, $10 each mechanical trades. CD 1/15.

HEAVY CONSTRUCTION—LB & CA

† **Great Lakes Dredge & Dock Co.**, 17 Battery Pl., New York 4, N. Y., LB **$302,338** (2 bidders) dredging, rock removal, Section 5, New York and New Jersey Channels (Arthur Kill) vicinity, Baltimore and Ohio RR Bridge 11.5 mi. SW of Battery, Richmond Boro.' CIVENG 30-075-60-61, NEW YORK and NEW JERSEY. U. S. Eng., 111 E. 16 St., New York 3, N. Y. Bids June 29. CD 6/17.

Fago Bros., 521 Young St., Tonawanda, N. Y., LB $121,926 (10 bidders) Curtiss Park storm sewer, TONAWANDA, N. Y. Town, Municipal Bldg., Kenmore, N. Y. Bds June 27. CD 6/13.

Edward Ihnen & Son, 59 Grand Ave., Montvale, N. J., CA $88,000, swimming pool on grounds, METUCHEN, N. J., Metuchen Golf & Country Club, Plainfield Ave., Metuchen, N. J.

BUILDINGS—LB & CA

▲ **Rockledge Development Corp.**, 69-33 76th St., Middle Village (P. O. Maspeth), N. Y. Owner builds, **$3,750,000**, 150 HOUSES, Dingle Ridge Rd., BREWSTER, N. Y. LeRoy F. Van Lent, Somers, N. Y., archt.

▲ **Mars Assoc., Inc.**, 271 Church St., New York 13, N. Y., CA **$4,707,000** combination general contract Proj. E-818 P.S. 288, Surf Ave. and W. 25th and W. 27th Sts., Brooklyn Boro; Proj. E-463 P. S. 232 83rd and 84th Sts., 153rd and 155th Aves., Queens Boro, South Ozone Park; Proj. E. 462, P. S. 183, Beach Channel Dr. and Beach 80th and 81st Sts., Queens Boro, Rockaway Beach, NEW YORK. Supt. of Design, Constr. & Physical Plant, Bureau of Constr., 4th Fl., 42-15 Crescent St., Long Island City 1, N. Y. Bids June 16. CD 6/20 under LB.

Juster Constr. Corp., 1304 Midland Ave., Yonkers, N. Y., Owner Builds. **$800,000**, 6 story APARTMENT, 167-193 Bronx River Rd., YONKERS, N. Y. Geo. C. Miller, 505 Fifth Ave., New York 17, N. Y., archt. Abrahams-Hert & Berg, 207 E. 37th St., New York 16, N. Y., structural engrs. CD 5/18.

West Lake Terrace, Inc., P. O. Box 241, Rahway, N. J., Owner Builds. **$750,000**, 30 HOUSES, West Lake Ave., WOODBRIDGE, N. J., Peter Grygotis, 306 Aldene Rd., Roselle, N. J., archt.

▲ **Louis H. Cahn & Co.**, 134 West State St., Trenton, N. J., Owner Builds, **$4,000,000**, SHOPPING CENTER and bowling alley, Parkway Ave., Ewing, TRENTON, N. J., Lawrence P. Polillo, 545 N. 23 St., Phila., Pa., archt. CD 2/25.

S. G. Mastriani Co., 700 N. Blakely St., Dunmore, Pa., LB **$434,300** SCIENCE HALL, Kutztown State College, KUTZTOWN, PA., General State Auth., 18 and Herr Sts., Harrisburg, Pa. Bids June 29. CD 6/2.

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $53,000; other public works $88,000; Industrial buildings $110,000; other buildings $400,000. Also Foreign projects of $1,000,000 and more in size of Interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England — **Middle West**
Middle Atlantic — **West of Mississippi**
South — **Far West**

PROPOSED WORK

Water Supply — **Public Buildings**
Sewers, Waste Disposal — **Mass Housing**
Bridges — **Commercial Buildings**
Streets & Roads — **Industrial Buildings**
Earthwork, Waterways — **Unclassified**

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.
BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.
SOON LETS CONTRACT: SLC
LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.
CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.

CD dates shown are of Construction Daily Issue in which last previous report was published.
OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

Symbols and Abbreviations Include:

† Federal Government
▲ Project of $1,000,000 or over.
ENR Engineering News-Record
CD Construction Daily
For additional reports see Construction Daily.

▲ **Fluor Corp.**, 2500 S. Atlantic Blvd., Los Angeles, Calif., dimazine and tedin manufacturing plants, BALTIMORE, Md. CA **$4,000,000**. Food Machinery & Chemical Corp., San Jose, Calif. Slingmaster & Breyer, Inc., 420 Lexington Ave., New York, N. Y., engrs.

Baltimore Contractors Inc, 711 S. Central Ave., Baltimore, Md., LB, **$500,000** WAREHOUSE addn., WILMINGTON, DEL., General Motors Corp., Boxwood Rd., Woodcrest St., Wilmington, Del.

SOUTH

HEAVY CONSTRUCTION—BA

† **West Virginia**—BA on or about 7/27—U. S. Eng., 502 8 St., Huntington, zone 1, addnl. clearing along Holly River, Sutton Reservoir Project, Elk River, CIVENG-46-022-61-1. Plans deposit $1. CD 9/29.

† **Fla., Mayport**—COMPRESSED AIR SYSTEM, etc.—BA 7/28—P. Wks. Office, 6th Naval Dist., Bldg. 13, Charleston, S. C., compressed air system addn., Check and Test Bldg., NBy 29155, Spec. 29155/60. CD 9/6/58.

HEAVY CONSTRUCTION—LB & CA

Gallimore & Lively, Pulaski, Va., LB **$252,949** (8 bidders) water filter plant addn., sewer interceptor lines, sewage treatment plant, RADFORD, VA. City, City Hall, Radford, Va. Bids June 23. CD 5/27.

Cone Brothers, 309 Ceasar St., Tampa, Fla., LB **$347,478** (6 bidders) sanitary sewer Project 35, Parts A and B, ST. PETERSBURG, FLA. City, City Hall, St. Petersburg, Fla. Bids June 28. CD 6/27.

▲† **ALABAMA**—Bureau P. Rds., First National Bank Bldg., Florence,

Ingalls Steel Constr. Co., 620 4 Ave., S. Birmingham, Ala., CA **$1,362,958**, 4,955 ft. steel superstructure bridge over Tennessee River Proj. 2 B1, Part B, Natchez Trace Parkway. Bids June 27. CD 6/29, under LB.

† **T. C. Young Constr. Co.**, Box 297, Williamsburg, Ky., LB **$117,468**, est. $157,000 (4 bidders) relocating stream crossings, 1 foot bridge, 1 vehicular bridge, Buckhorn Reservoir, CIVENG-15-029-60-53, KENTUCKY. U. S. Eng., P.O. Box 59, Louisville 1, Ky. Bids June 29. CD 6/8.

† **Terry & Wright of Kentucky, Inc.**, 4510 Poplar Level Rd., Louisville 13, Ky., LB **$667,251**, est. $633,560 (1 bidder) channel clearing Rough River and channel imprvt. Barnett Creek, Contrs. A, B & D; LB **$219,310**, est. $73,470 Section C, channel clearance, Rough River Reservoir, Grayson and Breckenridge Counties, ENG-15-029-60-32, KENTUCKY. U. S. Eng., P.O. Box 59, Louisville 1, Ky. Bids June 27. CD 6/2.

R. B. Tyler Co., 1446 Levering, Louisville, Ky., CA **$485,547**, ramp, Lee Standiford Field, Contr. A, LOUISVILLE, KY. Louisville-Jefferson County Air Bd., Standiford Field, Louisville, Ky. Fred Heil & Assocs., Standiford Field, Louisville, Ky., engrs. Bids June 16. Awarded June 28.

† **Pensacola Constr. Co.**, 3917 Broadway, Kansas City, Mo., CA **$508,110**, pile dikes Randolph Point, TENNESSEE. U. S. Eng., P.O. Box 97, Memphis, Tenn.

BUILDINGS—LB & CA

Robert R. Rothlein, 1470 N. Treasure Dr., N. Bay Village, Miami Beach, Fla., CA **$500,000**, OFFICE, North Miami Ave., N.E. First St., MIAMI, FLA. The Skyline Building Corp., c/o Theodore Gottfreid, archt., 844 Biscayne Blvd., Miami, Fla. CD 6/16.

▲ **Garrington Constr. Co.**, 4950 71 Ave. N., St. Petersburg, Fla., CA **$1,000,000**, four 6 story, steel and concrete, air-conditioned, swimming pool, APARTMENTS, ST. PETERSBURG, FLA. Southgate Towers, 150-62 Gulf Blvd., Madera Beach, St. Petersburg, Fla. CD 3/24.

† **Greenhut Constr. Co., Inc.**, P.O. Box 1175, Pensacola, Fla., CA **$609,666**, (15 bidders), DYNAMIC TEST FACILITY, Redstone Arsenal, ENG-01-076-60-57, HUNTSVILLE, ALA. U. S. Eng., 2301 Grant St., Mobile 7, Ala. Bids June 15. CD 6/22, under LB.

Hillwood Homes, Inc., Huntsville, Ala., Owner Builds, $800,000, HOMES in Lakewood Manor, HUNTSVILLE, ALA.

Bd. Suprvs., Eupora, Miss., rejected bids 1 story, brick, steel, masonry, etc. HOSPITAL, Proj. Miss. 88, EUPORA, MISS. Thomas Shelton Jones & Assocs., Stark Hotel, Starkville, Miss., archts. Will re-advertise. CD 3/12/59.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

Ill., Chicago—APRON REHAB.—BA 7/26—U. S. Eng., 536 S. Clark St., Zone 5, apron rehab., O'Hare International Airport, ENG-11-032-60-50. CD 3/30/51.

BUILDINGS—BA

Ill., Blue Island—FACILITIES—BA 7/28—Grand Trunk Western R. R. Co., C. J. Morris, ch. engr., 131 W. Lafayette Blvd., Detroit 26, Mich., constr. and relocation facilities incl. yard office, car repair, scale pit, approaches, sewers, water, power lines, appurtenances; relocating sand tower, fueling facilities, small structures, embankment for tracks, roadway, roadway surf.

HEAVY CONSTRUCTION—LB & CA

† **Ohio**—Bureau P. Rds., 920 Jefferson St., Roanoke, Val. rejected bids opened June 21, Proj. 2-A1, grading, draining, base, other work, Vesuvius Loop Rd., Wayne National Forest. CD 5/31.

† **Hilaman Constr. Co.**, 105 St. Marys St., Norwalk, O., LB $144,127, (2 bidders) recreation facilities, four sites, Dillon Reservoir Proj., OHIO U. S. Eng., 502 8th St., Huntington 1, W. Va. Bids June 28. CD 6/21.

Elmer Vogt Constr. Co., 859 Welmn St., Massillon, O. CA $195,442, (3 bidders) airport apron for Akron Canton Airport, AKRON, O. BD. Comrs. Summit Co., Courthouse, Akron, O. Bids June 24. Awarded June 27. CD 6/3.

Vest & Bartell Inc., 1953 Losantiville Ave., Cincinnati, O., LB $423,000, (3 bidders) collector sewer for sewage treatment plant, pump station, MILFORD, O. Village, Village Hall, Milford, O. Walter Manion, 3307 Clifton Ave., Cincinnati, O., engr. CD 5/19/54.

Erskine Constr. & Mining Inc., Poland Center Rd., Youngstown, O., LB $123,000 est. $103,300 (3 bidders) Contract No. 7, Mahoning River interceptor sewer system, 2,000 ft. Pike St., YOUNGSTOWN, O. City, City Hall, Youngstown, O. Bids June 28. CD 6/8.

INDIANA—State Hy. Dpt., State House Annex, Indianapolis, Bids opened 6/28,

Ind.—**Dyer Constr. Co.**, 1716 Sheffield, Dyer, Ind., LB $120,875, est. $121,477, (6 bidders), Road Contr. 4830, Lake Co.

Ind.—Wm. Waltz, North Manchester, Ind., LB $121,-159, est. $126,613, (2 bidders), Road Contr. 4944, Wabash Co.

Ind.—**Rieth-Riley Constr. Co., Inc.**, 2500 W. Fieldhouse Ave., Goshen, Ind., LB $220,772, est. $256,560, (8 bidders), Road Contr. 4997, Allen Co.

Ind.—Kahl & Mahon, 402 N. Main St., Liberty, Ind., LB $145,084, est. $166,382, (4 bidders), Road Contr. 4998, Wayne Co.

Ind.—**Robert H. King Contractor, Inc.**, Danville, Ind., LB $98,136, est. $120,959, (4 bidders), Road Contr. 5005, Hendricks Co. CD 6/13.

Milburn Bros., Inc., Central Rd., Mt. Prospect, Ill. CA $659,584, paving 1.5 mi. Kirchoff Rd. from Hicks Rd. to Wilke Rd. CHICAGO, ILL. Bd. Comrs. Cook Co., County Bldg., Chicago, Ill. CD 12/23/58.

▲ **W. E. O'Neil Constr. Co.**, 100 W. 91st St., Chicago, Ill. CA $2,061,541, three railroad grade separations near State St., north of 91st St., Chicago, Cook Co. CHICAGO, ILL. Bd. Comrs. Cook Co., County Bldg., Chicago, Ill. Awarded June 9. CD 1/14.

Seneca Petroleum Co., 439 W. 33rd St., Chicago 16, Ill. CD $150,046 No. 23 and 24-cs, bit. paving, curb and gutter 1.09 mi. OAK LAWN, ILL. Village, Village Hall, Oak Lawn, Ill. Bids June 23. CD 6/10.

Valley Constr. Co., 600 17th St., Rock Island, Ill. LB $233,346, No. 11-cs, 22,290 sq. yds, c. conc. paving SILVIS, ILL. Village, Village Hall, Silvis, Ill. Bids June 21. CD 6/15.

Rock Contractors, 9121 W. Lisbon Ave., Milwaukee, Wis, CA $202,745, (6 bidders), sewers, W. Hampton, N. 99 St., N. Teutonia Ave. and N. 43 St., MILWAUKEE, WIS., City, City Hall, Milwaukee, Wis., Bids June 22. Awarded June 24. CD 6/20.

Grange Constr. Co., 2900 W. College Ave., Milwaukee, Wis., CA $97,178, (4 bidders), sewer in N. 38 St., (Milwaukee, Wis.).

▲ **MICHIGAN and ONTARIO**—International Bridge Auth., 801 Seymour St., Sault Ste. Marie, Mich.,

Mich., Ont.—**Massman Constr. Co.**, 3917 Broadway, Kansas City, Mo., CA $1,945,710, substructure American River Span, Sault Ste. Marie International Bridge, between Sault Ste. Marie, Mich. and Sault Ste. Marie, Ont., Contr. 1;

Mich., Ont.—**Bethlehem Steel Corp.**, 701 E. Third St., Bethlehem, Pa., CA $2,105,361, superstructure American River Span. Sault Ste. Marie International Bridge between Sault Ste. Marie, Mich. and Sault Ste. Marie, Ont. Contr. 2. Bids June 22. CD 6/17.

▲† **Great Lakes Dredge & Dock Co.**, Williamson Bldg., Cleveland, O., CA $2,923,870, dredging Lower Livingstone Channel, CIVENG-20-064-60-80, MICHIGAN and ONTARIO. U. S. Eng., 1101 Washington Blvd., Detroit 26, Mich. Bids June 23. CD 6/27, under LB.

BUILDINGS—LB & CA

A. J. McMillan, New Lexington, O., LB $121,766, HIGHWAY GARAGE, Athens, OHIO. State Dpt. P. Wks., State Depts. Bldg., Columbus 15, O. Bids June 21. CD 6/6.

▲ **O., Brook Park**—OFFICE AND WAREHOUSE—General Electric Co., 1 River Rd., Schenectady, N. Y., soon lets contract, 125,000 sq. ft. office and major appliance warehouse, $1,200,000. Syl. G. Schmidt, Hollenden Hotel, Cleveland, Zone 14, archt. Adache & Assocs., Hollenden Hotel, Cleveland, Zone 14, engrs.

Beer Constr. Co., 45 W. 2nd St., Mansfield, O., LB $847,640, (7 bidders) HIGH SCHOOL, MANSFIELD, O. Bd. Educ., 75 Carpenter Rd., Mansfield, O. Bids June 28. CD 6/6.

Fred W. Entenman Inc., 3323 Secor Rd., Toledo, O., LB $865,247 (4 bidders) general contract HIGH SCHOOL-JUNIOR HIGH SCHOOL, Hill Ave. and McTigue Dr., TOLEDO, O. Bd. Educ., Adams Twps., 1800 Krieger Rd., Toledo, O. Bids June 24. CD 6/3.

Coble Assocs., 103 Gardner Bldg., Toledo, O., Owner Builds, $500,000, 60 HOMES, TOLEDO, O.

Edward Schroeder & Son, 2505 Schroeder Rd., Toledo, O., Owner Builds, $800,000, 50 HOMES, Donegal Lane Section, TOLEDO, O.

A. Bentley & Sons Co., 201 Belmont St., Toledo, O., CA Est. $400,000, REFINERY OFFICE, 4056 Cedar Point Rd., TOLEDO, O. Standard Oil Co. of Ohio, Midland Bldg., Cleveland, O. CD 5/15/51.

Schillmoeller & Krofl Co., Inc., 4065 N. Elston Ave., Chicago, Ill., LB $500,000, 80x240 ft. Indiana limestone CHURCH, 96th and Lawndale Aves., EVERGREEN PARK, ILL. Holy Redeemer Church, 9601 S. Millarad Ave., Evergreen Park, Ill. Fox & Fox, 30 N. LaSalle St., Chicago 2, Ill., archts. Bids about June 15.

† **Kaysner Constr. Co.**, Sioux Sainte Marie, Mich., LB $115,966 (3 bidders) brick and tile FISH HATCHERY, etc., Pendills Creek National Fish Hatchery, BRIMLEY, MICH. U. S. Dpt. Interior, Fish & Wildlife Service, 721 West Lake St., Minneapolis 8, Minn. Bids June 24. CD 6/9.

MISSISSIPPI TO ROCKIES

HEAVY CONSTRUCTION—BA

† **Tex., Abilene**—OPERATIONS addns.—BA 7/21— U. S. Eng., 100 W Vickery St., Fort Worth, operations addn., Sweetwater Air Force Station, Dyess Air Force Base Defense Area, Inv. Eng. 41-443-60-42. Wilson, Patterson & Assocs., 601 Bailey St., Forth Worth, archts. CD 1/29/60.

Mo., St. Louis—STREET LIGHTING—BA 8/3—City, Bd. P. Service, 304 City Hall, Zone 3, street lighting Delmar and Page Blvds., Kingshighway and Newstead Ave. $286,790. Sverdrup & Parcel, Inc., 915 Olive St., St. Louis 1, Mo., engr. CD 2/23.

† **Nebraska**—BA 8/9—Bureau Reclaamtion, Dpt. Interior, Casper, Kimball substaton, Transmission Div., Missouri River Basin Project, Kimball, Kimball Co., Spect. DC 5362. CD 5/25/44.

HEAVY CONSTRUCTION—LB & CA

† **Massman Constr. Co.**, 3917 Broadway, Kansas City, Mo., LB $539,704, est. $563,586, (5 bidders), bank stabilization, Missouri River, Bullard-Solder Bends, Mondamin, CIVENG-25-066-60-105, IOWA-NEBRASKA. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids June 23. CD 6/2.

Northern States Power Co., 15 S. Fifth St., Minneapolis, Minn., Own forces $281,000 transformer Sioux Falls Substation, SIOUX FALLS, S. D. CD 1/14.

▲ **NEBRASKA**—State Dpt. Roads, State House, Lincoln, Bids opened 6/23,

Neb.—**Missouri Valley Constr. Co.**, West 2 St., Grand Island, Neb., LB $163,349, grading, culverts, 6.8 mi. Ravenna South, S-201(1), S-201(2), Buffalo Co. LB $310,167, grading, culverts 10.4 mi. Valentine-Thedford, S-38-A, Cherry Co.

Neb.—**Peter Kiewit Sons' Co.**, 1024 Omaha National Bank Bldg., Omaha, Neb., LB $458,396, grading, pavement, culverts 0.1 mi. 42 St., Omaha, UG-516(3), UG-516(4), Douglas Co.; LB $258,271, grading, pavement, culverts 1.3 mi. Waterloo South, F-493(3), Douglas Co.

Neb.—**Abel Constr. Co.**, 1815 Y St., Lincoln, Neb., LB $148,043, grading, detour, pavement, culverts 0.7 mi. Lincoln-Omaha Rd., West of Lincoln, I 80-9(48), Div. I, Lancaster Co.

Neb.—**Capital Bridge Co.**, 1001 N. 9 St., Lincoln, Neb., LB $294,071, grading, pavement, culverts, bridges 0.1 mi. Washington St., Papillion, F-237(8), Sarpy Co.

Neb.—**Dobson Brothers Constr. Co.**, 503 National Bank Bldg., Lincoln, Neb., LB $106,355, grading, culverts 3.7 mi. Darr South, S-812(1), Dawson Co. CD 6/16.

Booth & Olson, Inc., 529 Insurance Exchange, Sioux City, Iowa. CA $110,379, street paving, etc., Dist. 33, SCHUYLER, NEB., City, City Hall, Schuyler, Neb., Bids May 7.

Missouri Valley Constr. Co., West 2 St., Grand Island, Neb., CA $102,182, street paving, etc., Dists. 30, 31, and 32, (Schuyler, Neb.).

Midland Telephone Co., Grandview, Tex., Owner builds $135,000 rural pole telephone lines, Grandview, TEXAS. CD 6/9.

Tennessee Gas Transmission Corp., Tennessee Bldg., Houston, Tex., Owner builds. $575,000 gas line paralleling line from vicinity Fulton to Goliad Tex. Refugio area, TEXAS. CD 6/23.

† **Universal Constr. Co.**, 1129 Udell St., Indianapolis, Ind., LB $92,464 est. $95,200, water storage tank, Amarillo Air Force Base, Eng. 34-066-60-47 AMARILLO, TEX. U. S. Eng., P. O. Box 61, Tulsa, 2, Okla. Bids June 9. CD 5/16.

† **C & L Stone, Builders**, 3469 E. Kiest Blvd., Dallas, Tex., CA $172,621 communications facility, Naval Air Station NBy 26006 DALLAS, TEX., Officer in Charge of Constr. 8th Naval Dist. Bldg. 16, U. S. Naval Station New Orleans (Algiers) La., Bids June 9, CD 5/23.

Walter M. Mischer Co., 705 Holmes Rd., Houston, Tex., CA $166,165 streets, sewer, water lines, HOUSTON, TEX., Charles W. Baltzell, 540 Pinehaven St., Houston, Tex. CD 1/22/57.

Brown & Root, Inc., P. O. Box 3, Houston, Tex., LB $143,944 asph. street paving Quince St. Griggs to Lawndale, HOUSTON, TEX., City, City Hall, Houston, Tex., Bids June 13. CD 9/16.

L. Vernon Miller & Sons, 3015 S. Post Oak Rd., Houston, Tex., LB $115,246 asphalt paving Richmond Ave. Shepherd to Kirby Dr. (Houston, Tex.).

Iowa—**J. D. Armstrong, Inc.**, P.O. Box 528, Ames, Iowa, LB $870,576, grading 3.66 mi., I-IG-80-5(11)167, Jasper Co.

Iowa—**Manatt's, Inc.**, Brooklyn, Iowa, LB $101,415, surf. 89.50 mi., FM-536, Poweshiek Co. CD 6/15.

IOWA—State Hy. Comm., Ames, Bids opened 6/28,

Iowa—**Jensen Bros., Inc.**, and **United Contractors, Inc.**, 1901 Easton Blvd., Des Moines, Iowa, LB $339,518, Bridge I-IG-80-5(11)167, Group 1, Jasper Co.; LB $109,782, Bridge I-IG-80-5(11)167, Group 2, Jasper Co.; LB $153,873, Bridge I-IG-80-5(11), Group 3, Jasper Co.

Iowa—**F. A. Moser, Inc.**, Farmersburg, Iowa, LB $128,-577, Bridge FN-58, Benton Co. CD 6/15.

† **Vance Brothers, Inc.**, 4923 Lawn, Kansas City, Mo., LB $337,023, est. $297,253 (4 bidders), access roads, Table Rock Reservoir, White River, CIVENG-03-050-60-73, MISSOURI and ARKANSAS. U. S. Eng., Gay Bldg., Little Rock, Ark. Bids June 27. CD 5/13.

† **William K. Ingram**, Box 369, W. Memphis, Ark., CA $118,551, levee work, Gibbons and Derring, Pemiscot and Dunklin Counties, CIVENG-40-041-60-76, MISSOURI. U. S. Eng., P.O. Box 97, Memphis 1, Tenn. Bids June 14. CD 5/19.

▲ **ARKANSAS**—State Hy. Comn., Capitol, Little Rock, Bids opened June 29,

Ark.—**Ben M. Hogan & Co.**, 1100 Fairview, Little Rock, Ark., LB $438,684 (5 bidders), 5.096 mi. limited grading, gravel and cr. stone base course, curbing, guard fence ACHM base and surf. courses and bit. treated shoulders, El Dorado East By-Pass Rd., State Hy. 167 Section 1 and 2, Job 7531 Fed. Aid Proj. U-UF-021-1 (6), Union Co.; LB $151,312 (2 bidders), 2.413 mi. gr. mr. dr. structures, widening and resurf. asph. con. hot mix base and surf. courses and portland cement or bit. stabilized shoulders with double bit. surf. treatment Lake Village-Eudora Rd., State Hy. 65 Section 21 Job 2607, Fed. Aid Proj. F 025-1 (5), Chicot Co.; LB $634,107 (4 bidders), 9.871 mi. grading, minor drainage structures, cr. stone base ACH m. surf. Fayetteville-Elkins Rd., State Hy. 16 Section 3, Job 9424 Fed. Aid Proj. S 339 (1), Washington Co.

Ark.—**Mickey's, Inc.**, Warren, Ark., LB $354,707 (6 bidders), 3.295 mi. grading minor drainage structures, gravel base double bit. surf. treatment State Highway 1, Halliday-Clay Co. Line, Section 20, Job 10581 Federal Aid Project F 031-3 (1), Greene Co.; LB $475,380 (8 bidders), 1.872 mi. grading, minor drainage structures, cr. stone base double bit. surf. treatment approaches, Little Rock-Memphis Interstate Hy. 40, Section 3, Eureka Gardens, Cold Water and Dick Jeter Grade Separations and Galloway Interchange, Job 6637 Fed. Aid Proj. I-40-3(10) 158, Pulaski Co.

Ark.—**H. C. Cathey**, Camden, Ark., LB $569,023 (8 bidders), 7.687 mi. grading, minor drainage structures Little Rock Pine Bluff Rd. State Highway 65, Sections 12 and 13 Grant County Line-Bingham Rd. Job 6697 Fed. Aid Proj. F 025-2 (7), Grant, Saline and Pulaski Counties.

Ark.—**Forsgren Bros.**, 3023 N. 23 St., Fort Smith, Ark., LB $356,128 (5 bidders), 6.316 mi. grading, minor drainage structures, cr. stone base double bit. surf. treatment, Kingston Highway, 68 Rd. State Highway 21 Section 4, Job 9423 Fed. Aid Proj. S-337 (3), Madison and Carroll Counties.

Ark.—**Reynolds & Williams**, 3200 Brown St., Little Rock, Ark., LB $197,988 (8 bidders), 6.709 mi. grading, minor drainage structures, selected material subbase and shoulders, portland cement stabilized base double bit. surf. tr. Gethsemane-Tomberlin Rd. State Highway 31 Sections 1 and 2, Job 1388 Fed. Aid Proj. S 129 (5), Jefferson and Lonoke Counties.

Ark.—**Bucton Constr. Co.**, Hazen, Ark., LB $148,754 (7 bidders), 0.557 mi. grading, minor drainage structures cr. stone base double bit. surf. tr. Salado-Oil Trough Rd. State Highway 14, Section 9, Job 5492 Fed. Aid Project S-465 (1), Independence Co. CD 6/24.

ARKANSAS—State Hy. Comn., Capitol, Little Rock, received no bids June 29, 0.373 mi. grading, minor drainage structures, plant mixed cr. stone base, concrete combination curb and gutter ACHM surf. West Poplar St., City of Rogers, State Hy. 12, Section 3, Job 9401, Benton Co. CD 6/24.

Yancy B. Turner, 914 W. 13 St., Pine Bluff, Ark., LB $138,725, est. $126,638 (5 bidders), bank stabilization at Browns Bend on Arkansas River, Pulaski and Jefferson Counties, CIVENG-03-050-60-79, ARKANSAS. U. S. Eng., Gay Bldg., Little Rock, Ark. Bids June 27. CD 6/22.

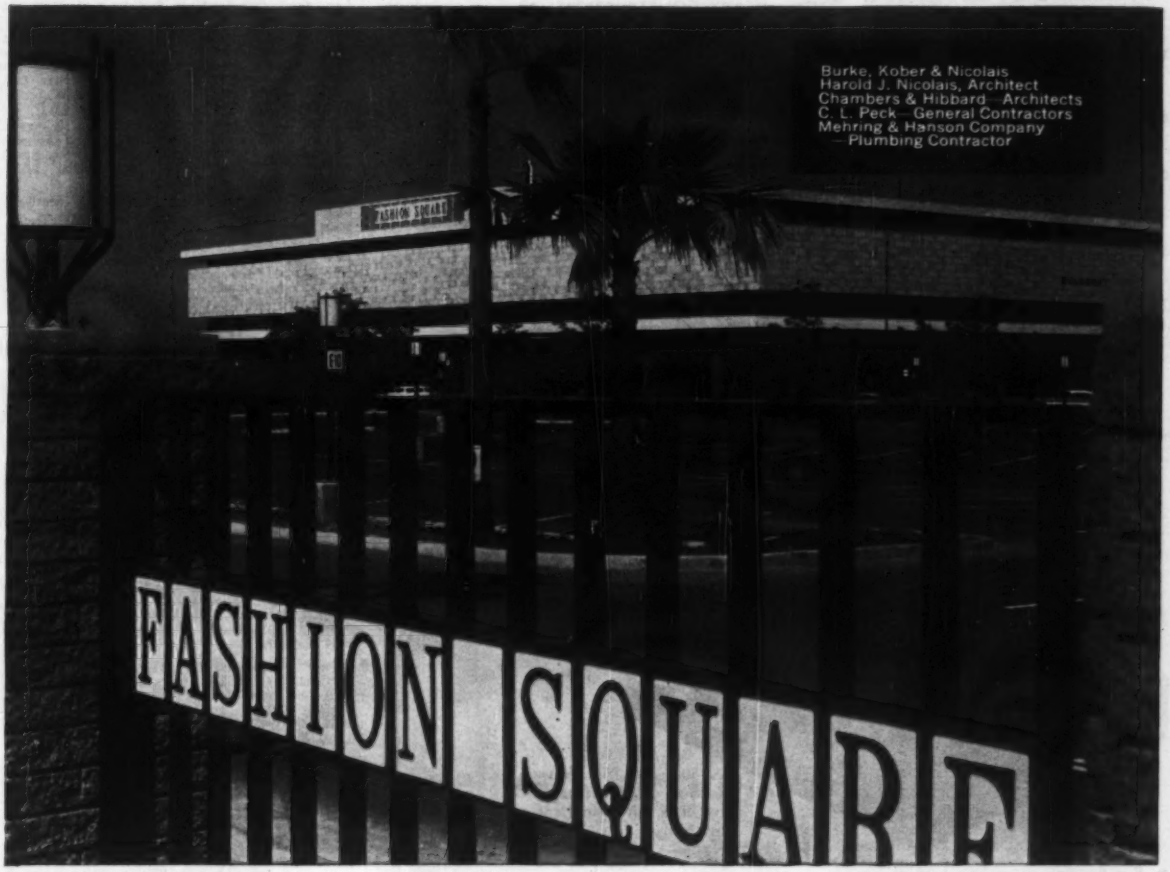
▲† **Chaney & Hope**, 6414 Maple St., Dallas, Tex., CA $1,034,752, hangar for Arkansas National Guard, Little Rock Air Force Base, Pulaski Co., ENG-03-050-60-58, LITTLE ROCK, ARK. U. S. Eng., Gay Bldg., Little Rock, Ark. Bids June 23. CD 6/27, under LB.

Jayhawk Electrical Constructors, 501 Burgess St., Topeka, Kan., LB $99,300 (4 bidders), installing street lights, NORTH LITTLE ROCK, ARK. City, City Hall, North Little Rock, Ark. CD 10/9.

BUILDINGS—LB & CA

Greenley Development Co., Independence, Iowa, CA $125,000, 23,500 sq. ft. PRODUCTION AND WAREHOUSE ADDN., OELWEIN, IOWA, Donaldson Co., Inc., 666 Pelham Blvd., St. Paul, Minn.

Kloster Co., 4607 Beck Ave., St. Louis 16, Mo., CA $897,000, 1 and 2 story, 87,284 sq. ft. JUNIOR HIGH SCHOOL, Ladue and Greser Rds. LADUE (ST. LOUIS 24 P. O.), MO. Bd. Educ. School Dist. of City of Ladue, 1201 S. Warson Rd., Ladue 24, Mo. Bids June 15. Awarded June 27. CD 6/22 under LB.



Found—in the finest squares and circles—**steel pipe,** the versatile tubular conductor

A new dimension in consumer services is exemplified by Fashion Square—a "first of its kind" personal service center in Santa Ana, California, conceived and built by nationally famous Bullock's, Inc.

In keeping with the Square's functionalism, *steel pipe* was logically first choice for plumbing, heating, vent lines and fire protection. Because *steel pipe* was readily available —black for fire sprinklers, galvanized for water, vent and drainage lines—its use resulted in low-cost, durable service piping that was quickly installed.

Steel pipe is always first choice when economy *plus* strength *plus* ease of working *plus* choice of finishes *plus* ready availability are required. Whatever the application —water, oil or gas transmission; fire protection, heating, cooling and plumbing; vent and drainage lines; refrigeration, ice making, radiant heating or snow melting; electrical or communications conduit—*steel pipe* serves best.

COMMITTEE ON STEEL PIPE RESEARCH
150 East Forty-Second Street, New York 17, N.Y.

STEEL PIPE IS FIRST CHOICE

- Low cost with durability
- Strength unexcelled for safety
- Formable—bends readily
- Weldable—easily, strongly
- Threads smoothly, cleanly
- Sound joints, welded or coupled
- Grades, finishes for all purposes
- Available everywhere from stock

INSIST ON PIPE MADE IN U.S.A.

Yours for the asking . . .

Write for your copy of the 48-page booklet "Radiant Panel Heating with Steel Pipe." It details the design, installation and operation of radiant heating systems.

George Moeller Constr. Co., 3007 Wyoming St., St. Louis 18, Mo., LB **$432,756** est. $575,000 (9 bidders) 1 and 2 story Kennerly Road ELEMENTARY SCHOOL, ST. LOUIS COUNTY, MO. Lindbergh School Dist. R-8, Bd. Educ., 4900 S. Lindbergh Blvd., St. Louis County 26, Mo. Bids June 27. CD 6/22.

Tasco Corp., Rm. 521, 1221 Locust St., St. Louis 3, Mo., CA est. **$250,000,** 1 story 159x379 ft. WAREHOUSE, 1400 Macklind Ave., ST. LOUIS, MO. Acme Paper Co., 115 S. 8th St., St. Louis 2, Mo.

Ernest Ward, P. O. Box 152, Benton, Ark., LB **$528,200,** est. $425,000, (5 bidders), SCHOOL, ARKADELPHIA, ARK., Arkadelphia School Dist., Arkadelphia, Ark. Bids June 24. CD 6/2.

R. B. Potashnick Constr. Co., Box 423, Cape Girardeau, Mo., CA **$425,000,** 10 story PARKING GARAGE; CA **$501,000,** 8 story PARKING GARAGE, BEAUMONT, TEX. Beaumont Public Bldgs. Corp., Wilson Bldg., Beaumont, Tex. CD 4/12/55.

Jansen Constr. Co., 1203 Powhattan St., Dallas, Tex. CA **$406,544** est. $550,000, 2 story, 44,000 sq. ft. concrete brick ELEMENTARY SCHOOL, Kiest, Ledbetter, Hampton and Polks Sts., DALLAS, TEX. Dallas Ind. School Dist., 3700 Ross Ave., Dallas, Tex. Bids June 7. CD 2/25.

Lawrence Black, 1206 E. 17 St., Odessa, Tex., CA **$192,218** motor SHOP, ODESSA, TEX., Odessa Motor Co., Meyers Hurt St., Odessa, Tex., C. M. Hardy & Assoc., 3104 Blossom Lane, Odessa, Tex. engr. CD 5/11.

FAR WEST

HEAVY CONSTRUCTION—BA

† **Arizona**—BA 8/9—Bureau Reclamation, Dpt. Interior, Bldg. 53, Denver Federal Center, Denver, furnishing and delivering f.o.b. cars of trucks Schedule, Item 1, 1 control system incl. 1 control cabinet, piping, brackets, oil tank and appurtenant equipment for six 7.0 ft. x 10.5 ft. outlet gates, Left Diversion tunnel outlet works Glen Canyon Dam, Glen Canyon Unit Arizona-Utah, Middle River Division, Colorado River Storage Project, DS 5364.

† **Calif., Point Arena**—WATER SUPPLY ADDNS.—BA About 8/11—U. S. Eng., 100 New Montgomery St., San Francisco, Phase II, steel water pumphouses, 500,000 gal. raw water reservoir, relocated two 75,000 gal. steel reservoirs, etc., Air Force Station, ENG-04-203-61-3. $200,000. Plans deposit $3.

▲ **Ore., Portland**—HOTEL—BA 7/22—Office of Skidmore, Owings & Merrill, archts., 2040 SW Jefferson St. (selected list of bidders) 22 story, Portland Hilton Hotel, 4 subterranean levels, landscaped plaza, swimming pool, ballroom, drive-in entrance for Portland Hilton Hotel Corp. Extended date. CD 7/1.

HEAVY CONSTRUCTION—LB & CA

▲ **ALASKA**—State, Comr. P. Wks., Juneau, bids opened 5/24, **S. S. Mullen, Inc.,** Box 3886, Seattle, Wash., LB **$1,038,242** (6 bidders) grading, drainage, bridges 3.11 mi. Tongass Hy. along Clover Passage to Lunch Creek, near Ketchikan. Proj. FH 1-J2, K. CD 5/6.

▲† **Chris Berg, Inc.,** 2730 Westlake N., Seattle, Wash., LB **$1,908,535** constr. eight Rearward Communications Stations, Pedro Dome, Black Rapids, McCullum Paxsen, Tolson, Sheep Mountain, Harding Lake and Donnelly Dome, Inv. 60-62, ALASKA. U. S. Eng., 1519 S. Alaska Way, Seattle 4, Wash. Bids June 23 (Correction-Low bidder.) CD 6/29 under LB.

▲† **S. S. Mullen, Inc.,** 220 River St., Seattle, Wash., LB **$641,099** est. $742,154 (9 bidders) rearward communications stations, Sawmill Sch. D. Inv. 60-63, ALASKA. U. S. Eng., 1519 S. Alaskan Way, Seattle 4, Wash. Bids June 28. CD 6/7,

B-E-C-K Constructors, Inc., 3847 Stoneway, Seattle 3, Wash. LB **$428,694** est. $609,827 (8 bidders) rearward communications station Tahneta Pass Sch. C, Inv. 60-63 (Alaska),

Glacier Constr. Co., Anchorage, Alaska, LB **$406,694** est. $420,277 (4 bidders) rearward communications stations, Aurora and Glennallen Schs. A&B, Inv. 60-63 (Alaska.).

Kreager Constr. Co., E. 812 2 St., Spokane, Wash., LB **$55,657,** (7 bidders), 9,921 ft., 4-12 in. steel watermains, POST FALLS, IDAHO, Village, Village Hall, Post Falls, Idaho. Bids June 24. CD 6/16.

UTAH—State Rd. Comn., State Capitol Bldg., Salt Lake City, Bids opened 6/28,

Germer, Abbott & Waldron, 18 N. Tremont, Tremonton, Utah, LB **$219,624,** wid'n., surf. 6 mi. State Rd. 39 toward Ogden Canyon from Woodruff, Rich Co. CD 6/22.

† **Shiff Constr. Co.,** 302 S. Plumer Ave., Tuscon, Ariz., LB **$823,303,** est. $682,200, (9 bidders), maintenance hangars and mess hall, Marine Corps Auxiliary Air Station, Spec. 24698, YUMA, ARIZ., Eleventh Naval Dist., 1220 Pacific Hy., San Diego 1, Calif., Bids June 28. CD 6/28.

† **Charles T. Parker,** P. O. Box 7588, Portland, Ore., CA **$888,993,** Schedule V, 21.4 mi. Rock Reach-Maple Valley 345-kv line No. 1, Kittitas and King Counties, Inv. 9124, WASHINGTON, Bonneville Power Admin., 1001 N. E. Lloyd Blvd., Portland, Ore., Bids May 27, Awarded June 6. CD 6/13 under LB

† **Pettijohn Engineering Co.,** 4145 N. E. Cully Blvd., Portland, Ore., LB **$461,658,** (6 bidders), Schedule I, 28.1 mi. steel tower transmission line, Douglas, Chelan, Kittitas and King Counties, Inv. 9101, WASHINGTON, Bonneville Power Admin., 1001 N. E. Lloyd Blvd., Portland, Ore., Bids June 27. CD 4/22.

† **Teller Constr. Co.,** 845 N. Graham St., Portland, Ore., CA **$214,410,** (6 bidders), high voltage laboratory, J. D. Ross substation, Clark Co., Inv. 9131, WASHINGTON, Bonneville Power Admin., 1001 N. E. Lloyd Blvd., Portland, Ore., Bids June 13. Awarded June 24. CD 5/18.

S. & S. Surfacing Co., 5717 20 Ave. N. W., Seattle, Wash., LB **$90,017,** (2 bidders), asph. paving 23 mi. roads in Road Dist. No. 2, SEATTLE, WASH., King Co., County-City Bldg., Seattle 4, Wash.

Construction Engineers & Contractors, 1502 N. Jackson St., Tacoma, Wash., LB. **$106,078,** clearing, grubbing, grading, shelter bldg., wading pool, tennis courts, etc., for George B. Kandle playfield, TACOMA, WASH., Metropolitan Park Dist., City Hall, Tacoma, Wash., Sitts & Hill, 2901 S. 40 St., Tacoma, Wash., engrs.

† **G. A. Grant,** 832 W. Marie St., Pasco, Ore., LB **$113,650** est. $94,060 (5 bidders) sandblasting facilities, McNary Dam, Inv. 60-52 OREGON U. S. Eng., City-County Airport, Walla Walla, Wash. Bids June 28. CD 5/11.

Lord Bros., 9233 N. Calvert Ave., Portland, Ore. CA **$257,292,** steam distribution system, boiler plant addns., Oregon Capitol Group Buildings SALEM, ORE. State Bd. Control Capitol, Salem, Ore. Bids June 24. Awarded June 24. CD 6/16.

▲ **WASHINGTON**—State Hy. Comm., Olympia. Bids June 28. Wash.—**Florito Bros.,** 1100 Leary Way, Seattle, Wash. LB **$773,716,** est. $930,000, (6 bidders), draining, grading, erosion control, surf., bit. surf. treatment and cement treated base and b. conc. paving 1.763 mi. Primary St. Hy. 3, Selah jct. to Cascade pond, FAP Nos. UI-92-1(6) and UI-82-2(6), Yakima Co.

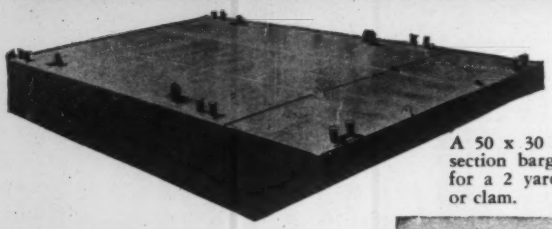
Wash.—**D. A. Sullivan,** P. O. Box 37, Parkwater Station, Spokane, Wash., LB **$312,578,** est. $384,000, (10 bidders), draining, grading, surf., bit. surf. treatment and rein.-conc. slab bridge 5.822 mi. Secondary St. Hy. 11-F, Valley View Farms to Harrington, FAS No. S-0289(6), Lincoln Co. CD 6/9.

† **Calmac Contr. Corp.,** 1060 Crenshaw Blvd., Los Angeles, Calif., LB **$340,338** est. $400,000 (7 bidders) ground/air transmitter receiver bldg., Boron Air Force Station and Shafter Air Force Station. ENG 04-353-60-113, BORON, CALIF. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids June 24. CD 6/21.

Ham Bros., 418 South Anza, El Cajon, Calif., LB **$106,667.** Pipe Line Proj. 7850, El Cajon, LA MESA, CALIF. Helix Irrigation Dist., 8111 University Ave., La Mesa, Calif. Bids June 28. CD 6/17.

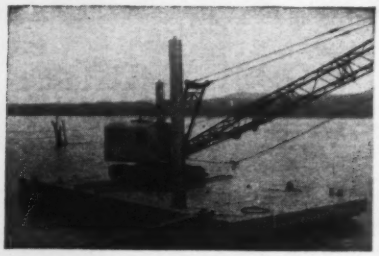
† **Main Cornice Works,** 7219 Beverly Blvd., Los Angeles, Calif., CA **$733,533** Group Headquarters Bldg., Vandenberg Air Force Base. ENG 04-353-60-69, LOMPOC, CALIF. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids June 15. Awarded June 17. CD 6/22 under LB.

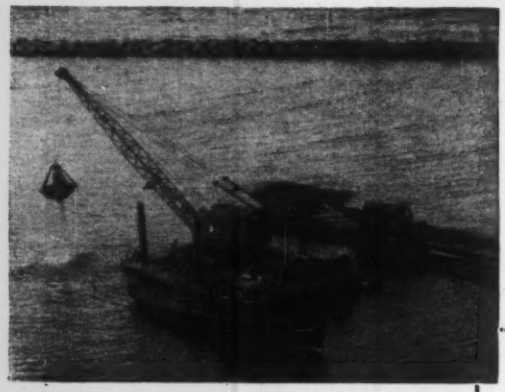
MANITOWOC
SECTIONAL BARGES



A 50 x 30 foot four-section barge suitable for a 2 yard dragline or clam.

- For floating all sizes of life cranes, clams, draglines and other contractors' equipment.
- Easily assembled or knocked down for moving by rail or highway.
- Sections can be assembled into numerous barge sizes.
- Spuds, deck fittings, loading ramps and other accessories available.





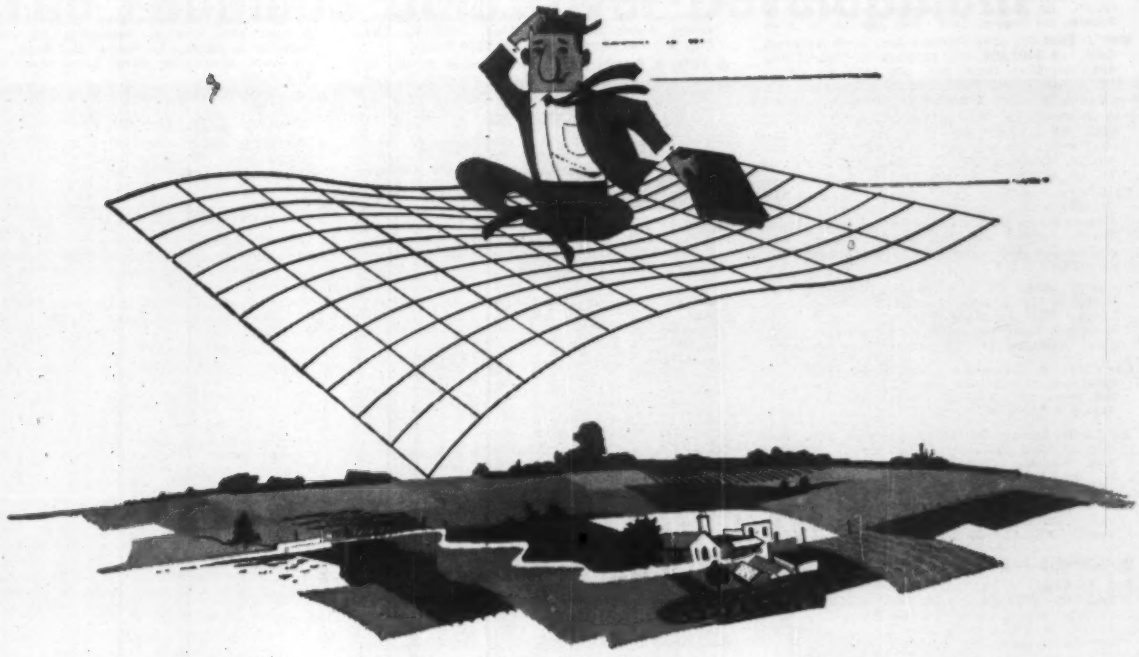
Above, a sectional barge completely assembled with crane, spuds and deck equipment ready to go to work.

Designed for the contractor who needs low cost, flexible and portable floating equipment, a typical clam operation performed from a sectional barge.

Write for additional information and prices.

Sold direct or through Manitowoc Engineering Corporation distributors.

MANITOWOC SHIPBUILDING INC.
MANITOWOC • WISCONSIN



Sheffield delivers reinforcing steel with "magic-carpet" speed

Take Sheffield Welded Wire Fabric, for example. It's ready to roll in any quantity to meet your construction schedule, from Sheffield's strategic plant locations in Mid-America and on the Gulf Coast. The same goes for Sheffield Crescent Reinforcing Bars, Joists and every other Sheffield steel product for construction. This nearby availability can mean big savings for you in short-haul shipping and on-time delivery.

More "magic": the extra strength and service life Sheffield Welded Wire Fabric adds to concrete

This welded wire fabric provides a backbone of steel for every type of concrete slab, from sidewalks to super-highways. It distributes load stresses uniformly throughout the slab, and prevents development of damaging cracks. Minimizes maintenance. Soon returns its small cost with dividends in service life and safety. Get the whole story from your nearby Sheffield distributor.

SHEFFIELD

ARMCO

Products for Construction

Open-Web Steel Joists
Crescent Reinforcing Bars
Welded Wire Fabric. Ring-Shank, Drive-Screw and Standard Nails.
Shef-Ty Wire
High-Strength Structural Bolts

SHEFFIELD DIVISION

Sheffield Plants in Kansas City, Tulsa and Houston

ARMCO STEEL CORPORATION

OTHER DIVISIONS AND SUBSIDIARIES: Armco Division • The National Supply Company • Armco Drainage & Metal Products, Inc. • The Armco International Corporation • Union Wire Rope Corporation • Southwest Steel Products

Tomei Constr. Co., 4737 Orison Ave., Van Nuys, Calif., CA **$350,766**, imprvt. 1.6 mi. Palos Verdes Dr. north from Dapplegray Lane to Western Ave., LOS ANGELES, CALIF. Bd. Suprvs., Los Angeles Co., 501 Hall of Records, Los Angeles, Calif. Bids June 14, CD 5/26.

Matt J. Zaich Co., 6828 Farmdale Ave., North Hollywood, Calif., LB **$402,800**, est. $400,000 (6 bidders) Proj. 408, Bell Storm Drain, Bell, LOS ANGELES, CALIF. Los Angeles County Flood Control, 2250 Alcazar St., Los Angeles, Calif. Bids June 24. CD 6/2.

† **P. J. Walker Co.**, 3900 Whiteside Ave., Los Angeles, Calif., LB **$132,600**, est. $200,000 (6 bidders) hospital addns., Edwards Air Force Base. ENG 04-353-60-106, MUROC, CALIF. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids June 28. CD 6/15.

S. A. Cummings Contr. Corp., 821 W. Rosecrans Ave., Compton, Calif., LB **$928,320**, est. $810,000 (4 bidders) sewers, storm drains, water sys., streets, curbs, PALOS VERDES ESTATE, CALIF. City of Palos Verdes, City Hall, Palos Verdes Estates, Calif. Bids June 24. CD 6/7.

C. Harper, 6295 De Camp Dr., La Mesa, Calf., LB **$106,748** (12 bidders) El Cajon Blvd. storm drain, between Polk and Meade, SAN DIEGO, CALIF. City, Purchasing Agent, Rm. 161, Civic Center, San Diego 1, Calif. Bids June 28. CD 6/7.

City, 1444 W. Garvey Ave., West Covina, Calif., cancelled bids to have been opened July 7, Baymar St. and Norma Ave. Sewer Dist. WEST COVINA, CALIF., $107,834. CD 6/30.

▲† **Gunther-Shirley Co.**, 4560 Sherman Oaks Ave., Sherman Oaks, Calif., E. V. Lane Corp., 2675 Park Blvd., Palo Alto, Calif. **and Gibbons & Reed Co.**, 825 W. 9th North St., Salt Lake City, Utah CA **$4,142,000** conversion of P. O. L. facilities, NBy 25540 PEARL HARBOR, HAWAII. Dist. P. Wks. Dpt., 14th Naval Dist., Honolulu, Hawaii. Bids June 17. Awarded June 22. CD 6/23 under LB.

BUILDINGS—LB & CA

† **C. H. Leavell & Co.**, 1900 Wyoming Ave., El Paso, Tex., LB **$385,096**, TEST COMMUNICATIONS at Electronic Proving Ground, ENG-04-353-60-102. FORT HUACHUCA, ARIZ., U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids June 23. CD 6/16.

▲ **Atkins-Cowan Constr. Co.**, 5144 Gardena Ave., Long Beach, Calif., CA **$1,167,012**, est. $1,000,000. Hazard INTERMEDIATE SCHOOL, GARDEN GROVE, CALIF. Garden Grove High School Dist., 11231 Stanford St., Garden Grove, Calif. Bids June 13. Awarded June 24. CD 6/17 under LB.

▲ **Robert E. McKee, Inc.**, 4701 San Fernando Rd., Los Angeles, Calif., CA **$4,006,000** superstructure for 7 story HOSPITAL, Panorama City, LOS ANGELES, CALIF. Kaiser Foundation Hospital, Broadway and W. MacArthur Blvd., Oakland, Calif. Clarence W. Mayhew & H. L. Thiederman, 251 Post St., San Francisco, Calif., archts.

Bethlehem Steel Corp., 6000 S. Boyle Ave., Vernon, Calif., CA **$607,689** furnish, fabricate, erect structural steel and install mechanical equipment for main bldg. Units 1 & 2, Haynes Steam Plant, 109 Pacific Coast Hy., Seal Beach, LOS ANGELES, CALIF. Los Angeles Water & Power, 316 W. 2nd St., Los Angeles, Calif. Bids Apr. 18. CD 4/28 under LB.

Gerstenberger & Pierson, 4814 W. Jefferson Blvd., Los Angeles, Calif., LB **$829,230**, est. $750,000 (6 bidders) rein.-con. masonry SCHOOL AUDITORIUM, Manhattan Beach, REDONDO BEACH, CALIF. South Bay Union High School Dist., 207 N. Francis Ave., Redondo Beach, Calif. Bids June 23. CD 6/2.

CANADA

BUILDINGS—BA

▲ **Ont., Toronto**—SCHOOL—BA 7/19—North York Bd. Educ., 15 Oakburn Crescent, Junior High School, Don Mills Rd., $1,000,000. John B. Parkin Assocs., 1500 Don Mills Rd., Postal Station J, Don Mills, archt.-engr. CD 2/29.

▲ **Ont., Kitchener**—HOSPITAL—BA 7/27—St. Marys Hospital, Queensmouth Crescent, first phase, 10 story, penthouse, 52 x 190 ft. rein. conc., brick, block hospital extension, $3,000,000. Somerville, McMurrich & Oxley, 191 Eglinton Ave. E., Toronto, archts. CD 7/28/59.

HEAVY CONSTRUCTION—LB & CA

MANITOBA—Dpt. P. Wks., Legislative Bldg., Winnipeg, Man.—**Amalgamated Constr. Co., Ltd.**, 190 Dunvegan Ave., Winnipeg, Man., LB **$96,870**, grading, Provincial Hy. 24, Dauphin.

Man.—**A. M. Kelly & Sons, Ltd.**, 316 McIntyre Bldg., Winnipeg, Man., LB **$136,160** (3 bidders) gravelling 45 mi. Gypsumville-Grand Rapids Rd., Gypsumville.

MANITOBA—Dpt. P. Wks., Legislative Bldg., Winnipeg, **Nelson River Constr. Co., Ltd.**, 101 Dawson Rd., St. Boniface, Man., CA **$128,005**, concrete pavement 1.83 mi. Provincial Hy. No. 3 from Waverly St., Fort Whyte, Tuxedo.

▲ **Matthews Concrete Ltd.**, 406 Princess Ave., London, Ont., CA **$825,873**, sewage treatment plant, Greater Sault Ste. Marie integrated sewerage plant SAULT STE. MARIE, ONT. Ontario Water Resources Comn., East Block Parliament Bldg., Toronto, Ont. Bids May 20. Awarded June 27. CD 4/29;
J. R. Brown & Co., Ltd., Sault Ste. Marie, Ont., CA **$268,534**, pumping stations, Pim St., and Clarke St., sewage treatment plant for Greater Sault Ste. Marie integrated sewerage scheme (Sault Ste. Marie, Ont.).

George W. Porter Constr. Co., Ltd., 1177 Finch Ave. W., Downsview, Ont., LB **$176,963**, concrete sidewalks, various streets, Contract C 8360, TORONTO, ONT. City, City Hall, Toronto, Ont. CD 12/9/55.

▲ **Yolles & Rotenberg Ltd.**, 111 Richmond St. W., Toronto, Ont., CA Est. **$1,000,000**, 220x300 ft. steel, masonry television station, TORONTO, ONT. Baton Aldred Rogers Broadcasting Ltd., c/o Toronto Telegram, Bay and Melinda Sts., Toronto, Ont. CD 5/5.

Charles Duranceau Ltee., 2545 Jacques Hertel St., Montreal, Que., CA Est. **$107,000**, pavements, Beaconsfield Blvd., BEACONSFIELD, QUE. Town, 450 Lakeshore Rd., Beaconsfield, Que.

BUILDINGS—LB & CA

▲ **Wallace & Akins Ltd.**, 245 Somerset Bldg., Winnipeg, Man., CA Est. **$1,000,000**, 3 story, frame, masonry Catholic Institute, MIDDLECHURCH, MAN. Benedictine Mother House, c/o Arthur V. Mauro, Bank of Nova Scotia Bldg., Winnipeg. Bids May 26. CD 5/11.

Wyatt Constr. Co. Ltd., 383 McMillan Ave., Winnipeg, Man., LB **$537,740** (7 bidders) COLLEGIATE addn., SELKIRK, MAN. The Lord Selkirk School Div. No. 11, Selkirk, Man. Bids June 2. CD 5/17.

Newman Bros. Ltd., 4A Clark St., St. Catherines, Ont., CA **$632,541**, 1 story, concrete, masonry HOME FOR AGED, 2 story staff quarters, BRACEBRIDGE, ONT. Muskoka Area Home for Aged, c/o Rounthwaite & Fairfield, 93 Yorkville Ave., Toronto, Ont. Bids Apr. 20. Awarded June 24. CD 1/28.

Golconda Builders Corp., 155 Port Royal Ave., Montreal, Que., Owner Builds, **$175,000**, 1 story, bsmnt., 100x175 ft. concrete block, brick INDUSTRIAL BLDG., concrete fdn., 9855 St. Urbain St., MONTREAL, QUE.

PROPOSED PROJECTS

WATER SUPPLY

Utah, South Ogden—City Council, City Hall, two reservoirs and extension sub-division lines; storm sewer sys., **$450,000**. **Templeton & Linke**, 500 Dooly Bldg., Salt Lake City, Utah, engrs. Bond election planned in sixty days.

SEWERS, WASTE DISPOSAL

▲ **District of Columbia and Virginia**—D. C. Govt., Dpt. Sanitary Engineering, 499 Pa. Ave. N.W., Wash., D. C., sanitary interceptor and trunk sewer line from Dulles International Airport to D. C. Potomac Interceptor. **$25,000,000**. (No appropriation.)

STREETS AND ROADS

▲ **WASHINGTON**—State Hy. Comm., Transportation Bldg., Olympia,
King Co.—connection between 2nd floating bridge over Lake Washington and Seattle freeway, **$5,813,000**. Constr. next year. W. A. Bugge, c/o owner, st. hy. director.

AIRPORTS

▲† **N. Y., Islip**—AIR ROUTE TRAFFIC CONTROL CENTER—Federal Aviation Agency, 1711 New York Ave. N.W., Wash., D. C., air route traffic control center near MacArthur Airport. **$1,500,000**.

FOREIGN

▲ **Taiwan, Kaohsiung**—POWER PLANT—Taiwan Power Co., Taipei, 125,000 KW extension to Nanou Steam Power Plant. $20,500,000.

PUBLIC BUILDINGS

▲ **Colo. Arvada**—SCHOOL—School Dist. R-1, 1580 Yarrow, Lakewood, plans by Harold R. Carver, 5557 Wadsworth, Arvada, North Arvada Junior High School, **$1,400,000** CD 6/7.

▲† **Del., Wilmington** — COURTHOUSE ETC — General Services Admin., 19 and F Sts., N. W., Wash., D. C., 7 story, 200,000 sq. ft. courthouse, **$7,110,000**. (no appropriation) Wilbus, Smith & Assocs., 495 Orange St., New Haven, Conn., consult. engrs. CD 2/4.

▲ **Ga. Thomasville**—POST OFFICE, COURTHOUSE—General Services Admin., 19th & F STS. N. W., Wash., D. C. plans by Jinright & Jinright, Thomasville and Thompson, Lackey & Assocs., Valdosta, post office and courthouse **$1,258,600**. No appropriation. CD 2/4/60.

▲ **N. J. Laurelton**—SCHOOLS—Bd. Educ., Twp Brick, Chamber Bridge Rd., Laureiton, voted bonds, Alfonso Alvarez 204 Bellevue Ave Upper Montclair, high school Chambers Bridge **$1,000,000**; elementary school, Point Hill Rd. **$1,000,000**. CD 5/2/60.

▲ **N. Y., Levittown**—HIGH SCHOOL—Bd. Educ. Union Free School Dist. No. 5, plans by Louis E. Jallade, 597 Fifth Ave., New York 17, N. Y., 2 and 3 story brick and aluminum Gen. Douglas MacArthur high school, Wantagh Ave. and Old Jerusalem Rd. **$3,000,000**.

▲ **Pa., Lima**—INFIRMARY—Deaware County Comm., Courthouse Media, plans by George M. Ewing Co., Western Savings Fund Bldg., Philadelphia, archt.-consult. engr. Fair Acre Farm, County Institution and Infirmary Bldg. **$2,500,000**.

▲ **Va. Fairfax**—CLASSROOMS, etc. Dept. of Educ. State Off. Bldg., Richmond, plans by Joseph Saunders & Assoc 3636 King St. Alexandria, and Anderson, Beckwith & Haible, 11 Beacon St. Boston, Mass., classrooms, laboratories, offices, George Mason College. **$1,600,000**.

▲ **Va., Hampton**—SCHOOL—City, School Bd., plans by Oliver & Smith, 333 W. Freemason St., Norfolk, Phenix High School **$1,550,000** CD 2/12.

▲ **Que. Three Rivers**—Provincial Dept. of Social Welfare & Youth, Parliament Bldgs., Quebec City, old peoples homes **$1,000,000**.

COMMERCIAL BUILDINGS

▲ **Del., Wilmington** — APARTMENT — Retired Educators Foundation, c/o F. Dano Jackley, 3902 Cloverhill Rd., Baltimore, Md., archt., apartment and garage, **$3,500,000**.

▲ **Hawaii, Honolulu**—HOSPITAL—Kuakini Hospital, 347 N. Kuakini, hospital expansion. **$1,500,000**. Constr. March 1961.

▲ **Ill., Alton**—APARTMENTS—Washington Ave. Development Corp., 153 N. Meramec Ave., Clayton, Mo., plans by Gerald Mason, 153 N. Meramec Ave., Clayton 5, Mo., 2 story, apartments and 1 story office, 700 block of Washington Ave., **$2,500,000**.

▲ **N. J., West New York**—APARTMENT—Hudson Boulevard East Land Corp., 160 Broadway, New York, N. Y., plans by Stanley Horowitz, 45 Park Ave. E., Merrick, N. Y., 28 story apartment, Hudson Blvd., **$6,000,000**. Constr. in fall.

▲ **N. Y., New York**—APARTMENT—Syndicate, c/o John M. Kokkins, archt., 111 East 38th St., New York 16. N. Y., 19 story, 21,455 sq. ft. apartment, penthouse, 3rd Ave. between East 19th and East 80th Sts. **$2,000,000**. Constr. 1961.

▲ **N. C., Greensboro** — SHOPPING CENTER — O'Henry Shopping Center, Inc. (sub. Kavanaugh-Smith & Co.), 114 N. Green St., shopping center, Summit Ave. and Cone Blvd., **$1,500,000**.

▲ **Pa., Wayne**—OFFICE—Sun Oil Co., 1608 Walnut St., Philadelphia, plans by A. C. Strong, 22 W. 10th St., Chester, office, Lancaster Ave., **$1,000,000**.

▲ **Tex., Greggton**—SHOPPING CENTER, etc.—Frank L. LeBus, Sr., Lebus Shopping Center, Longview, shopping center, **$1,000,000**; hard-paved area, auto center, site area grading, filling, leveling, draining, **$60,000**. Kelly & DeTeau, First National Bank Bldg., Longview, archt.-engrs. CD 2/9/60.

▲ **Tex., San Antonio** — COMMERCIAL, RESIDENTIAL DEVELOPMENTS—Tom McCreless, c/o archt., plans by DeVerne Reed Kittles, 403 Blanco Rd., commercial development, **$5,000,000**; residential development, **$6,000,000**, South Loop 13 and Hy. 161.

▲ **Utah, Salt Lake City**—SHOPPING CENTER—General Land Corp., Wanship, Utah, plans by M. E. Harris, Jr., 967 E. 9th St., Salt Lake City, Utah, Hi-Land Plaza shopping center, 53A, site 5600 S. 9 E. **$2,100,000**.

▲ **Wash., Seattle**—APARTMENT—West Side Committee of Presbyterian Ministries, Inc., 1104 17 Ave. N., 12 story cooperative apartment, 43 Ave. N. and Garfield St. **$4,500,000**. J. Graham & Co., 1426 5th Ave., engrs.

▲ **Ont., Hamilton**—SHOPPING CENTER—Gage Construction Co. Ltd., and Wycliffe, 567 Sheppard Ave. E., Toronto, shopping center, Main St. **$2,500,000**.

▲ **Que., Gaspe**—HOSPITAL—Hotel Dieu de Gaspe, Rev. Soeurs Hospitaliers de la Misericorde de Jesus, plans by Pierre Rinfret, 1134 Chemin St., Louis, Sillery, 10 story, 53x245 ft. hospital extension, **$3,000,000**. Lalonde & Valois, 615 Belmont St., Montreal, consult. engrs. CD 5/12.

INDUSTRIAL BUILDINGS

▲ **Ill., Gurnee** — BOX FACTORY — Hoerner Boxes, Inc., Keokuk, Iowa, plans by Stanley Engr. Co., Hershey Bldg., Muscatine, Ia., 180,000 sq. ft. corrugated box factory, Grand Ave., E. of Skokie Highway. **$2,500,000**. Bids in July.

▲† **N. J., Edgewater**—WAREHOUSE—Post Office Dept., 12th and Pennsylvania Ave. N.W., Washington, D. C., mail handling warehouse, **$1,000,000**.

▲ **Tex., Dallas** — PLANT — H. L. Hunt Products Co., (subs. Hunt Oil Co.), Mercantile Bank Bldg., food plant, **$1,000,000**.

▲ **Tex., San Antonio** — PLANT — Tom McCreless, c/o archt., plans by DeVerne Reed Kittles, 403 Blanco Rd., industrial plants, South Loop 13 and Hy. 161, **$4,000,000**.

▲ **Man., Winnipeg**—BREWERY—Labatt's Manitoba Brewery Ltd., 137 Colony St., plans by Moody, Moore & Partners, 295 Broadway Ave., 100,000 sq. ft. brewery, **$7,500,000**.

UNCLASSIFIED

▲ **Pa., Philadelphia**—RACE TRACK—Liberty Bell Park Corp., Girard Trust Bldg., Philadelphia harness racing track, clubhouse, grandstand and restaurant, Woodhaven and Knights Rds. **$12,000,000**.

▲ **Virginia**—GAS MAINS—Virginia Electric & Power Co., 700 E. Franklin, Richmond, gas main, Newport News and Hampton, **$2,099,000**; gas mains, Norfolk, **$2,140,000**.

The Fabulous Ohio River Development

see story on following three pages . . . . . .

LOUISVILLE, KY.

Reconstruction of Lock No. 41 located 607 miles below Pittsburgh. This is a complicated job involving four cofferdams: Two main cofferdams, upstream and downstream and two guardwall cofferdams upstream and downstream. A total of 99 cells was constructed using 10,850 tons of USS MP 101 and MP 112 Piling in various lengths from 24 feet to 60 feet. General contractor—Hardaway Contracting Co., Columbus, Ga., under supervision of Louisville District, U. S. Corps of Engineers.

MARKLAND, IND.

Lock and Dam No. 39. Located 531.5 miles below Pittsburgh. Will replace five outmoded navigational facilities. One main lock 1,200 feet long by 110 feet wide and one auxiliary lock 600 feet x 110 feet. Dam gates are 42 feet high by 100 feet long. Lock cofferdam is 3,250 feet long, 50 feet high and contains 8,000 tons of USS Steel Sheet Piling. Lock construction recently completed by Dravo Corporation, Pittsburgh, Pa., under supervision of Louisville District, U. S. Corps of Engineers.

Between Greenup and Louisville... Four huge locks and

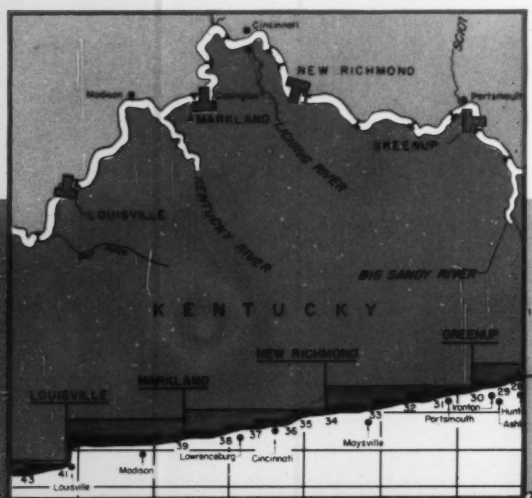


DIAGRAM showing location of three new higher dams at Markland, New Richmond and Greenup. These three dams plus the reconstructed modern dam at Louisville will have one main lock 1200′ x 110′ and one auxiliary lock 600′ x 110′. Similar improvements are also currently under construction at New Cumberland, West Virginia, near Pittsburgh and at Warwood, West Virginia, near Wheeling. Other new navigational structures are planned for construction later to complete the program.

NEW RICHMOND, OHIO

Lock and Dam No. 34. Located 436.2 miles below Pittsburgh. Will replace four older structures. Two locks same size as those at Markland but the dam gates will be only 37 feet high. The lock cofferdam contains 13,465 tons of steel sheet piling and has a total of 56 cells. Maximum length of piling 84 feet. Cofferdam construction by Peter Kiewit, Omaha, Neb.; lock construction by Groves Ventures Company, Minneapolis, Minnesota, under supervision of Huntington, W. Va. District, U. S. Corps of Engineers.

GREENUP, KY.

Lock and Dam No. 30. Located 341 miles below Pittsburgh. Replaces four older structures. Two locks of the same size as Markland. Dam gates will be 37 feet high. The lock structure has been completed by Atkinson-United Companies. A total of 10,194 tons of steel sheet piling was used. Much of this was USS Steel. Lock chamber cofferdam by Dravo Corporation of Pittsburgh, dam and cofferdam by Massman Construction Co., Kansas City, Mo., under supervision of Huntington, W. Va. District, U. S. Corps of Engineers.

dams will replace 14 outmoded structures

USS Steel Sheet Piling is used in the cofferdams

The growing industrial development in the Ohio River Valley has boosted river traffic to more than ten times what it was 30 years ago. In 1957 it was 17 billion ton-miles. Barge tows are now longer and many have to be broken up every time they go through the old 600-foot locks.

To speed traffic, the billion dollar Ohio River navigation replacement and improvement program is now in full swing under the direction of the Ohio River Division Office of the Corps of Engineers at Cincinnati, Ohio.

The entire program includes replacement of the present 46 navigational structures with 19 modern facilities. It is estimated that when the program is completed, about 1975, two full days' locking time will be cut off the average running time from Pittsburgh, Pa., where the Ohio River begins, to Cairo, Illinois, where it enters the Mississippi.

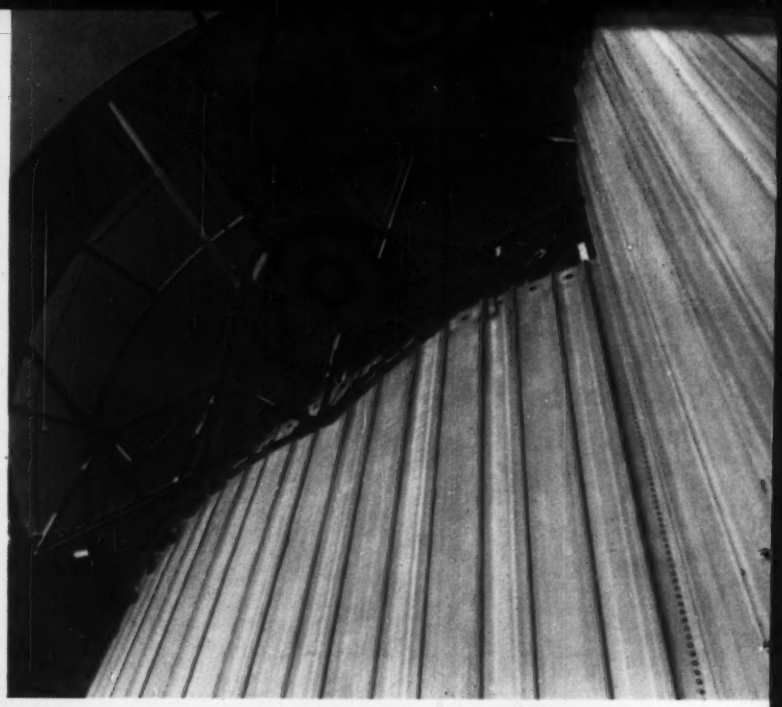
In this stretch of river, between Huntington, W. Va., and Louisville, Ky., huge new locks 1200 feet long and 110 feet wide are going in at Greenup, Ky., New Richmond, Ohio, Markland, Ind., and Louisville, Ky. Three new non-navigable dams, built higher to maintain the nine-foot minimum navigable depth, will take the place of 13 old structures in this 300-mile stretch.

One of the first major jobs is to build steel sheet piling cofferdams to dry up the work areas. Thousands of tons of U. S. Steel Sheet Piling are being used in these temporary cofferdams. A large quantity of USS Sheet Piling is also incorporated into the permanent lock structures. U. S. Steel's production capacity insures ready availability of all popular piling sections and makes possible quicker deliveries to each of the job sites. This capacity is advantageously located to provide shipment by various means—in this case by economical water transportation. In addition to steel sheet piling, hundreds of tons of USS Steel H-Piles are being used to support major portions of the structures including the guard and guide walls and in some cases the dam structures.

United States Steel Corporation—Pittsburgh
Columbia-Geneva Steel—San Francisco
Tennessee Coal & Iron—Fairfield, Alabama
United States Steel Export Company
United States Steel

Additional information on next page . . .

Building a cell at Louisville using a template to assure correct diameter.



USS Steel Sheet Piling stacked and ready for use after delivery by barge to Louisville.

Quick deliveries on USS Steel Piling

U.S. Steel's large production facilities and close attention to customer's needs have made possible "on-time" deliveries even in remote sections of the country. When you want any type of piling in a hurry—Steel Sheet Piling or Steel H-Piles—call the United States Steel office near you. For technical information, write United States Steel, 525 William Penn Place, Pittsburgh 30, Pa.

USS is a registered trademark

United States Steel Corporation—Pittsburgh
Columbia-Geneva Steel—San Francisco
Tennessee Coal & Iron—Fairfield, Alabama
United States Steel Export Company

United States Steel

Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

HEAVY CONSTRUCTION—BA

MAINE—BA 7/20—State Hy. Comn., Augusta, **Oxford Co.**—bit. gravel road 1.155 mi. Grafton and Upton, SP No. 178(501). CD 10/16/59.

▲ **MASSACHUSETTS** — BA 7/26 — Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston, **Fall River-Somerset**—substructure Interstate Rte. 195 bridge over Taunton River, 1-195-3(21)11 Contr. 1. $1,666,660. Plans deposit $25.

MASSACHUSETTS—BA 7/26—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston, **Somerset-Swansea**—hy. and bridge Int. Rte. 195, 1-195-3(20)8. $666,666. Plans deposit $35.

Conn., East Haven—BA 7/26—Town, Town Hall, Contr. 2, Tuttle Brook intercepting sewer; Contr. 3, branch and lateral sewers, West End District. Bowe, Albertson Assoc., 75 West St., New York, N. Y., engrs. CD 9/10/58.

▲ **MASSACHUSETTS**—BA 8/2—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston, **Medford**—hy. and bridge Int. Rte. 93, 193-1(18)1 and U-309(6). $1,466,666. Plans deposit $50.

BUILDINGS—BA

Conn., West Hartford — LIBRARY — BA 7/21 — Town, Purch. Agt., Town Hall, 19,423 sq. ft. West Hartford Public Library addn., alterations. $481,260. Plans deposit $50. Ebbets, Frid & Prentice, 862 Asylum Ave., Hartford, archts. CD 9/23/58.

N. H., Exeter—SCHOOLS—BA 7/26—Town, Seminary Bldg., senior high school addn., Linden St.; elementary school, Lincoln St., $440,000. Plans deposit $50 each. Alfred T. Granger Assoc., Granger Circle, Hanover, archts. CD 1/16/58.

Mass., Easton—SCHOOL—BA 7/28—Town, School Bldg. Comn., elementary school, Spooner St. $793,800. Plans deposit $100. Korslund, LeNormand & Quann, Inc., 506 Washington St., Norwood, Mass., archt. CD 1/6.

▲ **Mass., Framingham**—HOME ECONOMICS, etc.—BA 7/29—Commonwealth of Mass., Dpt. Educ., c/o Div. Bldg. Constr., 38 Chauncy St., Boston, E-59-8 home economics and science, State Teachers College. $1,922,400. Plans deposit $100. M. A. Dyer Co., 24 School St., Boston, Mass., archts. CD 2/12/58.

Mass., Marshfield — SCHOOL — BA 7/29 — Town, Town Hall, elementary school, Ames Way and Oak St. $620,000. Plans deposit $60. Theodore B. Hanna, 9 Arlington St., Boston, Mass., archt. CD 9/17/59.

▲ **Conn., New Haven**—GARAGE—BA 7/29—City, Purch. Agt., 200 Orange St., 7 story, 118 x 696 ft. garage and 1 story retail stores, Temple St., Church St. Redevelopment Project. $4,000,000. Plans deposit $100. Paul Rudolph, 31 High St., New Haven, archt. Henry A. Pfisterer, 111 Whitney Ave., New Haven, engr. June 20 bids cancelled. CD 6/23, under LB.

▲ **Mass., North Adams**—HOUSING—BA 8/4—City Housing Auth., 30 Catherine St., housing, Greylock Area. $1,000,000. Arthur F. Eldridge, 85 Main St., North Adams, Mass., archt. (Correction—bid date). CD 7/5.

HEAVY CONSTRUCTION—LB & CA

▲† **Five Boro Constr. Corp.**, 2 Lafayette St., New York, N. Y., CA **$1,869,000**, imprv. bldg. ways, Second Increment, Naval Shipyard, NBy24927, Spec. No. 24927-59, PORTSMOUTH, N. H., Dist. P. Wks. Office, IND, 495 Summer St., Boston 10, Mass. Bids June 21. Awarded June 30. CD 6/23 under LB.

† **A. Arcaro & Sons, Inc.**, 9 East Central St., Franklin, Mass., LB **$91,890**, est. $85,370, repairing flood control dike, right bank Pemigewasset River, Lincoln, CIVENG-19-016-60-61, NEW HAMPSHIRE, U. S. Eng., 562 Congress St., Portland, Me. Bids June 28. CD 6/20.

NEW HAMPSHIRE—Dpt. P. Wks. & Hys., Concord, Bids opened 6/30, **The Palazzi Corp.**, 11 S. Main St., Concord, N. H., LB **$330,625**, hot b. conc. 3.169 mi. roadway, New Durham, Strafford Co. CD 6/16.

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston. Bids opened 7/6. **M. DeMatteo Constr. Co.**, 200 Hancock St., Quincy, Mass., LB **$1,534,927**, est. $1,692,126, constr. section Int. Rte. 495 incl. three bridges. 1-495-6(21), Andover. CD 6/15.

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston. Bids opened 6/28. **The Henley Lungren Co.**, 193 Hartford Pike, Shrewsbury, Mass. LB **$1,037,810** hy. work, Rte. 26, Hatfield-Northampton. CD 6/9.

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston, **Campanella & Cardi Constr. Co.**, 780 Jefferson Blvd., Warwick, R. I. CA **$2,389,977**, est. $2,733,943 hy. and bridge Lowell Connector. U-358-2, Chelmsford-Lowell. Bids Jan. 19. Awarded June 21. CD 1/21 under LB.

Perini Corp., Marine Div., 62 Condor St., East Boston, Mass., CA **$260,900**, est. $248,100 dredging basin areas, Allerton Harbor, Hull, MASSACHUSETTS. Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston, Mass. Bids May 17. CD 5/24 under LB.

▲† **Green Manor Constr. Co., Inc.**, Turnpike West, Manchester, Conn., CA **$2,816,902**, rehabilitation Wherry Housing, Westover Air Force Base, IFB 19-617-60-63-380, CHICOPEE FALLS, MASS. Base Procurement Office, Officer in Charge Constr., Bldg. T-273, Westover Air Force Base, Chicopee Falls, Mass. Bids June 20. CD 6/23, under LB.

Petricca Constr. Co., 534 West St., Pittsfield, Mass., LB **$616,876**, est. $600,000, trunk sewer, DALTON, MASS. Town, Bd. Sewer Comrs., Town Hall, Dalton, Mass. Bids June 29. CD 6/10.

Anderson-Fairoaks, Inc., 227 Newfield Ave., Hartford, Conn., LB **$463,560**, (5 bidders), 14,050 ft. sanitary sewer Maple St., East Hartford, HARTFORD, CONN. Metropolitan Dist. Bd. Contract & Supply, 115 Broad St., Hartford, Conn. Bids June 30. CD 6/24.

A. & S. Constr., Inc., Hyde Park, Mass., CA **$215,000**, sanitary sewers, force mains, sewage pumping station, Jonathan Law High School, Baxter Lane Elementary School, West River St. Elementary School, etc., Devon and Milford, MILFORD, CONN. City, City Hall, Milford, Conn. Awarded June 30. CD 6/30, under LB.

BUILDINGS—LB & CA

▲**Tocci Bros. Constr. Co., Inc.**, 38 Colonial Ave., Newton, Mass., LB **$1,757,000**, est. $1,800,000 SENIOR-JUNIOR HIGH SCHOOL, Church St., CLINTON, MASS. Town, High School Bldg., Comn., Chestnut St., Clinton, Mass. Bids June 29. CD 6/10.

S. & A. Allen Constr. Co., Inc., 330 Rutherford Ave., Charlestown, Mass., CA Approx. **$500,000**, Bristol County SHOPPING CENTER, FALL RIVER, MASS. Owner, c/o contractor.

▲ **Chicks Constr. Co., Inc.**, Sterling St., Lancaster, Mass., LB **$1,035,961**, REGIONAL HIGH SCHOOL addn., HOLDEN, MASS. Wachusett Regional School, 1204 Main St., Holden, Mass. Bids June 30. CD 6/21.

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $53,000; other public works $88,000; Industrial buildings $110,000; other buildings $400,000. Also Foreign projects of $1,000,000 and more in size of Interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England	Middle West
Middle Atlantic	West of Mississippi
South	Far West

PROPOSED WORK

Water Supply	Public Buildings
Sewers, Waste Disposal	Mass Housing
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.
BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.
SOON LETS CONTRACT: SLC
LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.
CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.

CD dates shown are of Construction Daily Issue in which last previous report was published.
OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
ENR	Engineering News-Record
CD	Construction Daily

For additional reports see Construction Daily.

† **James Farina Corp.**, 20 Adams St., Worcester, Mass., CA **$181,950**, est. $200,000, missile master facilities, (2nd Increment) Fort Heath and Fort Banks. ENG. 18-016-60-72, WINTHROP, MASS. U. S. Eng., 424 Trapelo Rd., Waltham, Mass. Bids June 14. Awarded June 30. CD 6/7.

A. F. Smiley Constr. Co., 115 Trenton St., Pawtucket, R. I., CA **$160,000**, INDUSTRIAL PLANT, Marlboro-Northboro Line, MARLBORO, MASS. Paul Mark Corp., 725 Providence Pike, Dedham, Mass. Awarded June 28. CD 5/18 under Dedham Development Trust as owner.

▲ **Daniel O'Connell's Sons, Inc.**, 480 Hampden St., Holyoke, Mass., LB **$1,638,114**, est. $1,750,000, INFIRMARY, Brightside Mt. Marie-Springfield Rd., HOLYOKE, MASS. Providence Home for Children, c/o R. C. Diocese, 62 Elliot St., Springfield, Mass. Bids June 30. CD 6/7.

Horn Constr., Inc., 254 Prospect St., Hartford, Conn., CA Approx. **$800,000**, BOWLING ALLEYS, PITTSFIELD, MASS. Imperial Lanes, 44 Summer St., Pittsfield, Mass.

▲ **Tornabene Bros. Co.**, 170 Needham St., Newton Highlands, Mass., CA **$3,993,000**, HOME FOR AGED, WEST ROXBURY, MASS. Hebrew Home for Aged, 21 Queen St., Dorchester, Mass. Bids June 3. CD 6/7, under LB.

▲ **Park Lane Realty Corp.**, c/o Salah & Pecci Assoc., 1605 Veterans of Foreign Wars Parkway, West Roxbury, Mass., CA **$1,600,000**, 1st Section, Shopping Center, BOWLING BLDG. and two RESTAURANTS, for Veterans of Foreign Wars Parkway, WEST ROXBURY, MASS. Owner, c/o William Riseman & Assoc., 451 Boylston St., Boston, Mass.

E. Vigliotti Constr. Co., Inc., 785 Manton Ave., Providence, R. I., LB **$758,852**, CHEMICAL ENGINEERING and INDUSTRIAL ENGINEERING, University of Rhode Island, Bid 1056 RIPROJ URI 50 and URI 52, South, KINGSTON, R. I. State R. I. & Prov. Plants, Div. Purchase, State House, Providence, R. I. Bids June 30. CD 6/10.

▲ **Town**, High School Building Comn., Town Hall, Wilton, Conn., rejected bids June 6, high SCHOOL, **$2,000,000**, WILTON, CONN. CD 6/15 under LB.

▲ **L. F. DeMars**, Trowbridge Rd., North Coventry (P.O. Coventry, Conn.), Owner Builds, **$1,540,000**, 88 HOUSES, Cornwall Acres, off Rte. 44A, COVENTRY, CONN.

Edward Packtor Co., 467 Silas Deane Highway, Wethersfield, Conn., CA **$115,000**, WAREHOUSE, W. Service Rd., HARTFORD, CONN. Ruth U. Callahan Co., Hoadley Place, Hartford, Conn. Irving W. Rutherford, 186 Sigourney St., Hartford, Conn., archt. Awarded June 30.

Casano & Ocone, Inc., 20 Gorham Ave., Hamden, Conn., CA **$116,000**, SERVICE All Saints Cemetery, Middletown Ave., NORTH HAVEN, CONN. St. Lawrence Cemetery Assoc., Derby Ave., West Haven, Conn. Awarded July 1.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

D. C., Wash.—BA 7/19—D. C. Govt. Dpt. Highways, 499 Pa. Ave., N.W., Ramp 3 over Rock Creek Parkway, west leg Inner Loop Freeway G St. to Pennsylvania Ave. N. W. Plans deposit $20. CD 10/8/59.

N. J., Newark—ROTATING BEACON—BA 7/19—The Port of New York Auth., in the Office of the Chief Engineer, Room 1100, 111 Eighth Ave., New York 11, N. Y., installing rotating beacon, Hangar No. 14, Newark Airport, Contr. NA-140.018.

N. Y., Brooklyn—RECREATION AREAS, etc.—BA 7/19—Comr. Parks, Arsenal Bldg., 64 St. and 5 Ave., New York 21, general contract, plumbing, electrical and heating and ventilating of recreation areas, and rehabilitation of field house, Canarsie Beach Park, east of Paerdegat Basin, west. Fresh Creek Basin between Shore Parkway and Seaview Ave., Contr. B-18-158, Brooklyn Boro. Plans deposit $10 each. CD 3/18/57.

Pa., Phila.—BA 7/19—Dpt. Procurement, City Hall annex, Bid Nos. 2586 through 2597, sewers and appurtenances, various locations. CD 11/8/58.

Md., Laurel—BA 7/26—City, City Hall, Contr. 10, Laurel St. imprvts. Plans deposit $25. Michael Baker, Jr., Inc., 7338 Baltimore Ave., College Park, Md., engr. CD 2/18/59.

New York—QUEENS-MANHATTAN PLAZA IMPRVS.—BA 7/27—Triborough Bridge & Tunnel Auth., Administration Bldg., Randall's Island, New York 35, Contr. QMM-11, repaving Queens Plaza, Manhattan Plazas and surf approaches at Queens Midtown Tunnel, Queens and Manhattan Boros. Plans deposit $10.

N. Y., New York—BA 7/27—Dpt. P. Wks., Rm. 2200 Municipal Bldg., New York 7, Contr. 7A, structures and equip.; Contr. 7B, electrical work, Contr. 7C, heating and ventilating, Contr. 7D, plumbing Part 2, East 73 St. Incinerator, Manhattan Boro. Plans deposit $10.

BUILDINGS—BA

N. Y., Greenburgh—SECONDARY SCHOOL—BA 8/4—Bd. Educ. School Dist. No. 8, Town of Greenburgh, 33 West Hillside Ave., White Plains, 146,000 sq. ft. secondary school 5 bldgs., Woodlands Secondary Education Center. CD 5/9, under LB.

▲ **N. Y., New York**—APARTMENT—BA About 8/15—Diplomat Apartments, Inc., 207 W. 145 St., New York 39, apartment, 322-317 East 71 St. **$1,000,000**. Wechsler & Schimenti, 118 East 25 St., New York 10, N. Y. CD 10/27/50.

▲† **Md., Baltimore**—OLD AGE & SURVIVORS INSURANCE ANNEX—BA 8/3—General Service Admin., Rm. 7122, Regional Office Bldg., 7th & D Sts. S. W., Wash. 25, D. C., old age and survivors insurance annex. Proj. 18076. Plans deposit $75. CD 9/8/59. Adv. ENR 7/14.

▲ **N. J., Hazlet**—HIGH SCHOOL—BA 8/9—Bd. Educ. Twp. Raritan, 317 Middle Rd., high school at Pacific Park, Raritan Twp., $1,500,000. Frederick Fessler, 632 Holmdel Rd., archt. CD 6/30, under LB.

▲ **N. Y., New York**—HOUSES—BA 8/16—New York City Housing Auth., 299 Broadway, New York Zone 7, Gouverneur Morris Houses, Section 1, Proj. No. NYS-37, incl. 1,085 units combined with Morrisania Houses Proj. NYS-48A incl. 206 units, Bronx Boro. Extended Date. CD 4/29.

▲ **N. Y., Island Park**—SCHOOL—BA 9/27—Bd. Educ., Radcliff Rd., Island Park, elementary-junior high school, Broadway between Audubon & Trafalgar Blvds. $2,000,000. Reginald Marsh & Assoc., 101 Park Ave., New York 17, N. Y., archts. CD 3/8.

HEAVY CONSTRUCTION—LB & CA

▲ **Sun Shipbuilding & Dry Dock Co.**, foot of Morton Ave., Chester, Pa., CA **$5,622,810**, Narrows Bridge Contr. NB-4, furnishing, del. metalwork for cable anchorages, incl. cable anchor bars, structural framing and cable saddle castings, NEW YORK. Triborough Bridge & Tunnel Auth., Administration Bldg., Randall's Island, New York 36, N. Y. Bids June 15. CD 6/17, under LB.

▲ **Greater New York Assoc., Inc.**, 300 Park Ave., New York, N. Y., rejected bids overpasses, parking field, drainage facilities, Aqueduct Racetrack, OZONE PARK, N. Y. LB $1,054,234. Project indefinitely postponed. CD 6/9, under LB.

Anthony Grace & Sons, Inc., 151-45 6 Rd., Whitestone, N. Y., LB **$117,642**, (6 bidders), repaving exit and entrance drive, Henry Hudson Parkway southbound opposite W. 151 St., Manhattan Boro, Contr. X-110-160, NEW YORK, N. Y. Comr. Parks, Arsenal Bldg., Central Park, 64 St. and 5 Ave., New York 21, N. Y. Bids June 30. CD 6/22.

† **Great Lakes Dredge & Dock Co.**, 17 Battery Pl., New York 4, N. Y., CA **$715,088** dredging Buttermilk Channel, Upper Bay, New York Harbor, ENG 30-075-60-45, NEW YORK. U.S. Eng., 111 E. 16 St., New York 3, N. Y. Bids June 23 Awarded June 28 CD 6/27 under LB.

James H. Maloy, Inc., Shaker Rd., Loudonville, N. Y., LB **$183,421** (6 bidders) grading Area 2, State Office Bldg. Campus site, ALBANY, N. Y. State Dpt. P. Wks., State Office Bldg., Albany, N. Y. Bids June 29.

East Bay Contr. Co., Inc., 15 Park Row, New York 38, N. Y., LB **$135,532** (4 bidders) playground, P.S. 11 between Washington Ave. and Waverly Ave. south, Green Ave. Contr. B-301-159, Brooklyn Boro, BROOKLYN, N. Y. Comr. Parks, Arsenal Bldg., Central Park, 64 St. and 5 Ave., New York, N. Y. Bids July 6 CD 6/28.

Lizza & Sons, 21 Orchard St., Oyster Bay, N. Y., CA **$643,000** Contr. B-986-K2, imprvt. Long Beach Rd. from Austin Blvd. northerly to Waukena Ave., Oceanside and Island Park, MINEOLA, N. Y. Nassau County, Old County Court House, Franklin Ave., Mineola, N. Y. Bids June 22 CD 6/28 under LB.

▲ **Lane Constr. Co.**, 965 E. Main St., Meriden, Conn., CA **$11,695,000** Contr. 465, Cannonsville dam, waste weir and weir, waste, and outlet channels and completion of release water works, Deposit, Delaware Co., NEW YORK, N. Y. Bd. Water Supply, 13 Fl., 120 Wall St., New York, N. Y. Bids June 21 CD 6/22 under LB.

† **J. G. A. Constr. Corp.**, 123 Thompson Rd., East Syracuse, N. Y., CA **$577,938** runway and taxiway extension Air National Guard Facilities, Hancock Field. ENG 30-075-60-105, SYRACUSE, N. Y. U. S. Eng., 111 E. 16 St., New York 3, N. Y. Bids June 15 Awarded June 30 CD 6/20 under LB.

▲ **NEW JERSEY**—New Jersey Turnpike Auth., Admin. Bldg., New Brunswick, Bids opened 6/30,
Whitmyer Brothers, R. D. 3, Hammonton, N. J., LB **$2,008,117**, (7 bidders), galvanized guard rail median barrier 90 mi. along New Jersey Turnpike from Deepwater to Woodbridge. Contr. R70. CD 6/10.

Layne New York Co., 431 Market St., Camden, N. J., LB **$75,325**, well and well house, GLASSBORO, N. J., Borough Borough Hall, Glassboro, N. J. John G. Reutter, 726 Market St., Camden, N. J., engr.

Town, Municipal Bldg., Vail Place, Morristown, N. J., rejected bids June 27, control tower, taxiways at municipal airport, MORRISTOWN, N. J. LB **$583,000**. CD 6/24.

† **Tri-W Constr. Co.**, 3755 Library Rd., Pittsburgh, Pa., LB **$872,403**, (15 bidders), relocation Erie R.R. tracks site of Shenango River Flood Control Dam. Sharpsville, PENNSYLVANIA. U. S. Eng., New Post Office Bldg., Pittsburgh, Pa., Bids June 28. CD 6/13.

† **Steelman & Cicero**, 313 Park St., Honesdale, Pa., LB **$65,459**, Kettle Creek Reservoir, cemeteries relocation, CIVENG-18-020-60-9, PENNSYLVANIA. U. S. Eng., 24 St. and Maryland Ave., Baltimore 18, Md. Bids June 18. CD 4/27.

▲ **MARYLAND**—State Rds. Comn., 300 W. Preston St., Baltimore, Zone 3, bids opened 7/5,
George & Lynch Inc., Delaware Trust Bldg., Wilmington, Del., LB **$1,578,727**, (3 bidders), grading, drainage, surf. 1.653 mi. relocated US 50 through Salisbury incl. 3 span steel beam bridges US 13 over relocated US 50, 1 single span 70 ft. steel girder bridge on P.R.R. over US 50, Salisbury. WI-292-3-6-120, Wicomico Co. CD 6/14.

† **Truland Light & Power Co.**, 1511 22 St., North, Arlington, Va., CA **$757,000** land reclamation, electrical distrib. and lighting sys. addns., flood lighting, U.S. Naval Academy, NBy-27696 ANNAPOLIS, MD. Area P. Wks. Office, Chesapeake, U. S. Naval Weapons Plant, Wash., D. C. Bids June 27 Awarded June 30 CD 7/1 under LB.

† **Drummond & Co.**, Race Rd., Elkridge, Baltimore 27, Md., LB **$236,549**, (4 bidders), paving and airfield lighting. ENG-18-020-60-25, FORT GEORGE G. MEADE, MD. U. S. Eng., 24 St. and Maryland Ave., Baltimore, Md. Benjamin E. Beavin Co., 104 W. 25 St., Baltimore 18, Md., engrs. CD 9/28/59, under Public Buildings.

Helsing Bros., 4207 39 St., N.W., Wash., D. C., LB **$166,889** (4 bidders) resurf. (heater method) various roadways with asphaltic materials. WASH., D. C. D. C. Govt. Dpt. Highways, 499 Pa. Ave., N.W., Wash., D. C., Bids June 30 CD 6/24

Princemont Constr Co., 322 N. Stonestreet Ave., Rockville, Md., LB **$371,791** (6 bidders) College Pond trunk sewers, Georgetown University grounds from Canal Rd. to Reservoir Rd. N.W., WASH., D. C., D. C. Govt. Dpt. Sanitary Engineering, 499 Pa Ave., N.W., Wash., D. C., Bids June 29, CD 6/22.

† **Arnold M. Diamond, Inc.**, 115 Middle Neck Rd., Great Neck, N. Y., CA **$567,825**, runway approach lighting, laying about 83,000 ft. cable, etc., Ernest Harmon Air Force Base, Stephenville, ENG-03-347-60-29, ST. JOHN'S, NEWFOUNDLAND. U. S. Eng., 346 Broadway, New York 13, N. Y. Bids June 9. CD 6/14, under LB.

BUILDINGS—LB & CA

▲ **Geo. F. Driscoll Co.**, 41 E. 42nd St., New York 17, N. Y., CA est. **$2,500,000**, 21 story APARTMENT, FRESH MEADOWS, N. Y. New York Life Insurance Co., 51 Madison Ave., New York 10, N. Y. Voorhees, Walker, Smith, Smith & Haines, 101 Park Ave., New York, N. Y., archts. CD 4/26.

▲ **Milan Assoc. Inc.**, 310 Northern Blvd., Great Neck, N. Y., CA est. **$2,700,000**, 2 story, 140,000 sq. ft. MEAT PROCESSING PLANT, Oak Point Ave. and Barry St., Hunts Point, NEW YORK, N. Y. Peter I. Feinberg, 60 E 42 St., New York 17, N. Y. Henschien, Everds & Crombie, 59 E. Van Buren St., Chicago, Ill., archts. Stahl-Meyer, Inc., lessee. Awarded June 24.

Reader-Green Constr. Corp., 1 Sunrise Plaza, Valley Stream, N. Y., (7 bidders), LB **$996,800**, Central High SCHOOL ADDNS., VALLEY STREAM, N. Y., Bd. Educ. Central High School Dist. No. 1, Town of Hempstead, Fletcher Ave., Valley Stream, N. Y. Bids June 30. CD 6/17.

Peter Camilli & Sons, 75 Cooly St., Pleasantville, N. Y., CA **$805,000** HIGH SCHOOL addn., SUFFERN, N. Y. Ramapo Central School Dist. No. 1, Hemion Rd., Suffern, N. Y. Bids June 15 CD. 6/21 under LB.

Larsen-Johansen Inc., 286 Clinton Ave., Kingston, N. Y., CA est. **$200,000** FACTORY addn., WOODSTOCK, N. Y. Rotron Manufacturing Co., Schoonmaker Lane, Woodstock, N. Y. Bids June 17 CD 6/6.

Supt. of Design, Constr. & Physical Plant, Bureau of Constr., 4th Fl., 42-15 Crescent St., Long Island City 1, N. Y., rejected bids June 16, electrical work Schools Nos. 288, 232 and 183, Brooklyn, South Ozone Park and Rockaway Beach, NEW YORK. LB $602,600. CD 6/20, under LB.

▲ **Niagara University**, Lewiston Rd., Niagara Falls, N. Y., cancelled bids to have been opened June 14, SCIENCE BLDG., NIAGARA FALLS, N. Y. **$1,500,000**. Pfohl, Stoll & Roberts, 185 Niagara St., Buffalo, N. Y., archts. Will re-advertise. CD 6/6.

Mars Assocs., Inc. and **Normel Constr. Corp.**, 271 Church St., New York 13, N. Y., CA **$796,000**, ADMINISTRATION BLDG., City College, NEW YORK, N. Y. Bd. Higher Education, City College, Business Office, Brett Hall, 136 St. and Convent Ave., New York 31, N. Y. Bids June 14. CD 6/16, under LB.

Supt. of Design, Constr. & Physical Plant, Bureau of Constr., 4th Fl., 42-15 Crescent St., Long Island City 1, N. Y., rejected bids June 16, heating and ventilating for Schools Nos. 288, 232 and 183, Brooklyn, South Ozone Park and Rockaway Beach, NEW YORK. LB $703,050. CD 6/20, under LB.

Detor Constr. Co., 524 Hunt Ave., Syracuse, N. Y., LB **$618,500**, HIGH SCHOOL, TRUMANSBURG, N. Y. Bd. Educ., Trumansburg, N. Y.

Zampco Corp., 153 Main St., Closter, N. J., Owner Builds, **$480,000**, BOWLING ALLEY, Main and Taaz Sts., CLOSTER, N. J., Peter Butler, 172 State St., W. Englewood, N. J., archt.

G. K. Enterprises, 144 Main St., Hackensack, N. J., Owner Builds, **$750,000**, 54 unit garden APARTMENT, Summit Ave., HACKENSACK, N. J. Harsen & Johns, 30 Westervelt Ave., Tenafly, N. J., archts.

Dakota Builders, 21 North Michigan Ave., Kenilworth, N. J., Owner Builds, **$500,000**, 20 HOUSES, Dakota St., CLARK, N. J. Silberstein & Silberstein, 24 William St., Newark, N. J., archts.

Wm. Blanchard Co., 45 Poinier St., Newark, N. J., CA **$110,000**, SUPPLY AND TOOL SHOP, Rte. 80, DOVER, N. J., New Jersey Power & Light Co., Madison Ave., and Punchbowl Rd., Morristown, N. J. Bernard Kellenyi, 17 Linden Place, Red Bank, N. J., archt., Haaren & Beers, 38 Burrowers Place, Red Bank, N. J., engrs. CD 11/18/58.

Kehoe-Downs, Inc., 5714 Crescent Blvd., Pennsauken, N. J., CA **$846,000**, 2 DORMITORIES, TRENTON, N. J., Rider College, 428 E. State St., Trenton, N. J. Bids May 17. CD 5/26 under LB.

Costanza Contracting Co., 6515 Crescent Blvd., Pennsauken, N. J., CA **$350,000**, 1 story, 44,000 sq. ft. WAREHOUSE, PENNSAUKEN, N. J., Stockham Valves & Fittings, Inc., 4000 10 Ave., Birmingham, Ala., The Ballinger Co., 1625 Race St., Phila., Pa., archt.

▲ **Anthony Lascari**, 97 Kimming Ave., Lodi, N. J., Owner Builds, **$1,250,000**, 34 HOUSES Merrick St. and White Terrace EAST RUTHERFORD, N. J.

Louis Hajdu, Alpha, N. J., CA **$450,381**, 36 units HOUSING, PHILLIPSBURG, N. J. Phillipsburg Housing Auth., Phillipsburg, N. J. Bids May 12. CD 5/6.

▲ **Dorset Contracting Co., Inc.**, 4508 Hamilton St., Hyattsville, Md., LB **$1,488,000**, Fairmont JUNIOR HIGH SCHOOL, Fairmont Heights, MARLBORO, MD. Prince George's Bd. Educ., Marlboro, Md. R. L. Senseman, 7705 Georgia Ave. N.W., Wash., D. C., archt. Bids June 30. CD 8/1/58.

▲ **F. K. Campion, Inc.**, Flourtown, Pa., CA **$1,704,906**, High SCHOOL, BANGOR, PA., Bangor Area Joint School Auth., Bangor, Pa., Bids May 25, CD 6/17, under LB.

▲ **S. H. Evert & Co.**, Bloomsburg, Pa., CA **$2,064,300**, HOSPITAL addn. and alterations, DANVILLE, PA., George F. Geisinger Memorial Hospital, Danville, Pa. Bids June 2. CD 6/17, under LB.

▲ **B. Bornstein & Son**, 2027 Arch St., Phila., Pa., CA **$1,009,000**, Kenderton Elementary SCHOOL, 15 and Ontario Sts., PHILA., PA., Bd. Educ., 21 and Ontario Sts., Phila., Pa., Bids June 21. CD 6/29, under LB.

† **Southside Plumbing Co.**, Farmville, Va., LB **$108,425**, (6 bidders), rehabilitation work in 16 mobilization type bldgs. ORD18-001-60-230, ABERDEEN PROVING GROUND, MD. Procurement Office, Bldg. 505 Aberdeen Proving Grounds, Md. CD 9/5/58.

▲ **Baltimore Contractors, Inc.**, 711 S. Central Ave., Baltimore, Md., LB **$1,234,567**, (6 bidders), 2 and 3 story, masonry air-conditioned DEPARTMENT STORE Reisterstown Plaza Shopping Center, Reisterstown Rd., BALTIMORE, MD. The Hecht Co. of Baltimore, Howard & Lexington Sts., Baltimore 1, Md. Bids July 1. CD 7/1.

Charles E. Brohawn, Cambridge, Md., LB **$837,000**, (3 bidders), South Caroline HIGH SCHOOL, near here, DENTON, MD. Caroline County Bd. Educ., Denton, Md. Bids June 30. CD 6/16.

Larry S. Best, 2025 E. North Ave., Baltimore 13, Md., LB **$693,000**, est. $750,000, (10 bidders), 1 story, bsmnt., 121 x 161 ft. concrete, precast wall panels, etc. POLICE BUREAU HEADQUARTERS, TOWSON, MD. Baltimore County Executive, County Office Bldg., Towson 4, Md. Bids June 23. CD 6/9.

▲† **Terminal Constr. Co.**, St. Highway 17 and Moonachie Ave., Woodridge, N. J., CA **$4,099,777**, 250 unit Armed Services HOUSING Proj. Title 8 Housing, Dover Air Force Base, IFB 11-626-60-12. DOVER, DEL., Procurement Officer, Scott Air Force Base, Ill. Bids June 28. CD 6/15.

SOUTH

HEAVY CONSTRUCTION—BA

Va., Fairfax—BA 7/18—Fairfax Co., Bd. Co. Supervisors, Contract 98, sewer extensions, Integrated Sewerage System, CD 2/13/59.

▲ **Tenn., Nashville**—TAXIWAY—BA 7/19—City, City Hall, parallel taxiway and terminal apron, Berry Field $2,000,000 Plans deposit $100. Consoer, Townsend & Assocs., 360 E. Grand Ave., Chicago, Ill., engrs. CD 1/22.

Ga., Atlanta—BEAR PITS—BA 7/25—City, City Hall, bear pits and sea lion pool Grant Park Zoo. $150,000 Plans deposit $50., William C. Pauley, 101 Marietta St. Bldg., archt. CD 4/30/57.

Ga., Lawrenceville—CLUBHOUSE—BA 7/20—Castle View Town & Country Club, 3133 Maple Dr., N.E., Atlanta, Ga., selected list of bidders, clubhouse, $500,000. Heery & Heery, Inc., 1366 Peachtree St., N.E., Atlanta, Ga., archts.

Ga., Sandersville—CHURCH—BA 7/20—First Baptist Church, 30,000 sq. ft. church, sanctuary, education hall, $400,000. Dennis & Dennis, Bankers Insurance Bldg., Macon, archts. CD 5/31.

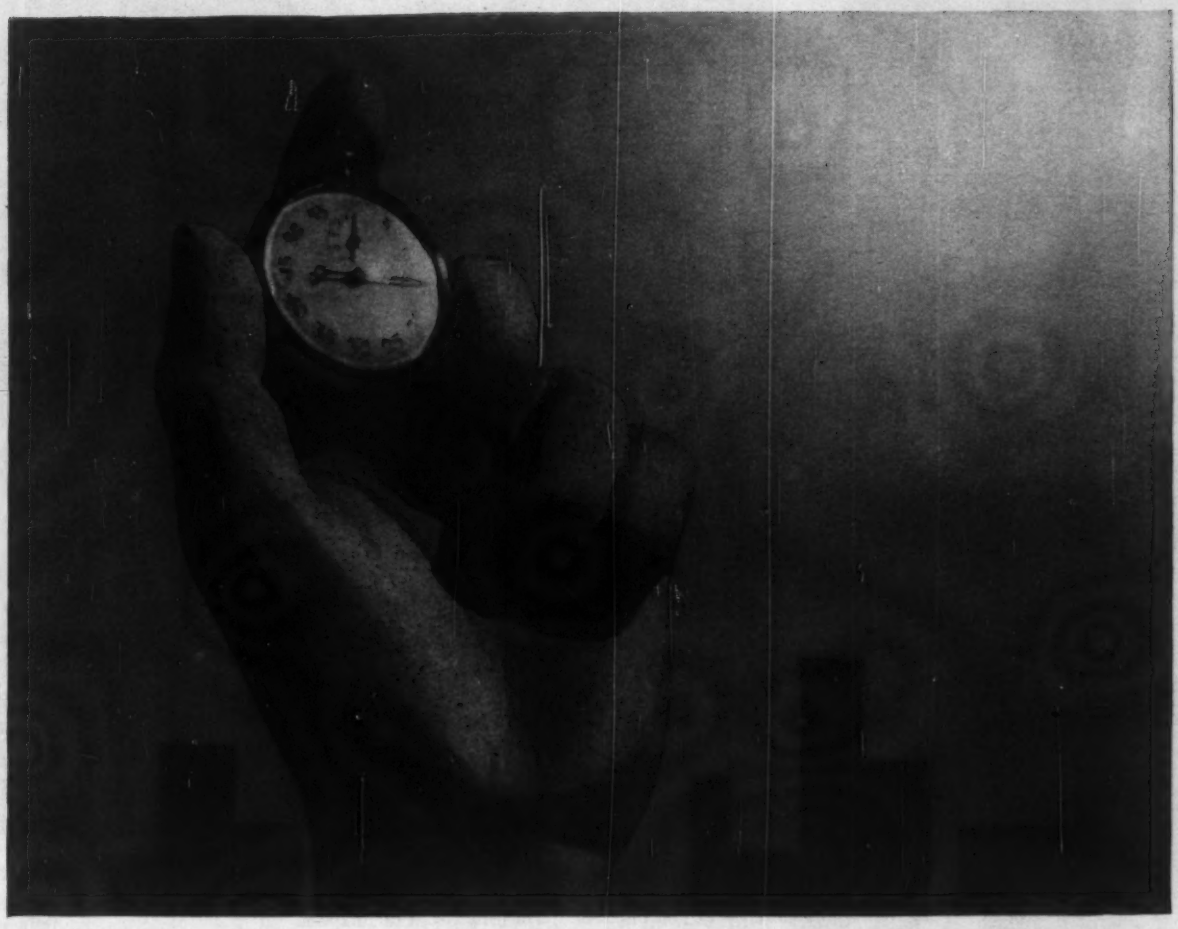
N. C., Asheville—SCHOOL—BA 7/20—City Bd. Educ., Junior High School, 53,000 sq. ft. Grace elementary school, $600,000. Plans deposit $50. Six Associates, 1095 Hendersonville Rd., archts. CD 6/3 under LB.

S. C., Laurens—PLANT—BA 7/26—Minnesota Mining & Mfg. Co., American Lava Division, 400 McKnight Rd., St. Paul, Minn., 50,000 sq. ft. technical ceramics plant, $300,000. Piedmont Engineering Service, 508 E. North St., Greenville, engrs. CD 6/2.

Ga., Atlanta—BA 7/27—Fulton Co. Bd. Comrs., 164 Central Ave. S.W., 5.94 mi. street paving, resurf. Roswell Rd. from Abernathy to Habersham roads. $200,000. Plans deposit $50. John J. Harte Co., 183 Harris St. N.W., Atlanta, engr. CD 4/30/56.

▲ **N. C., Butner**—HOSPITAL—BA 7/28—North Carolina Bd. Hospital Control, Revenue Bldgs., Raleigh, renovating five wards, John Umstead Hospital, $1,800,000. Plans deposit $100. Harris & Pyne, Snow Bldg., Durham, archts. CD 6/6.

▲ **Tenn., Chattanooga**—HOUSING—BA 7/28—Chattanooga Housing Auth., 1914 McCallie Ave., 192 housing units Proj. TENN 4-5 Selmon T. Franklin, 142 N. Market St., archt. May 28 bids rejected. CD 6/22 under LB.



Control concrete setting with J-M Retardwel...

the hot weather admixture that gives up to 50% higher 24-hour strength

Retardwel®, a product of Johns-Manville, world's largest industrial user of portland cement, is the liquid admixture that controls concrete setting time and prevents premature stiffening due to high temperatures *without* loss of early strength.

Retardwel permits a reduction in the water required for proper placing and provides all the advantages of concrete fabricated with a minimum paste content. Its use delays the initial set of concrete and provides a slower rate of heat evolution, thereby minimizing thermal stresses. Thus, the use of Retardwel will aid in eliminating shrinkage cracks. Only 3 ozs. of Retardwel per sack of cement will control setting time (see chart) and still increase 24-hour strength as much as 50%.

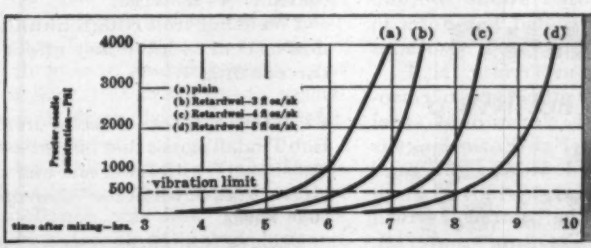
Retardwel's unique properties will also—

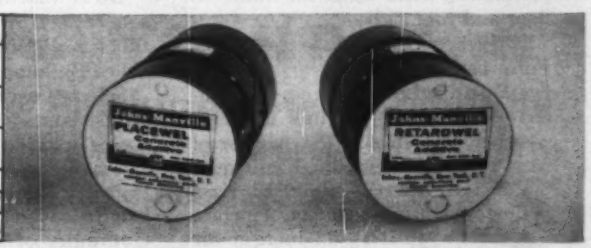
- Increase durability
- Improve dimensional stability
- Increase workability
- Reduce permeability
- Increase density

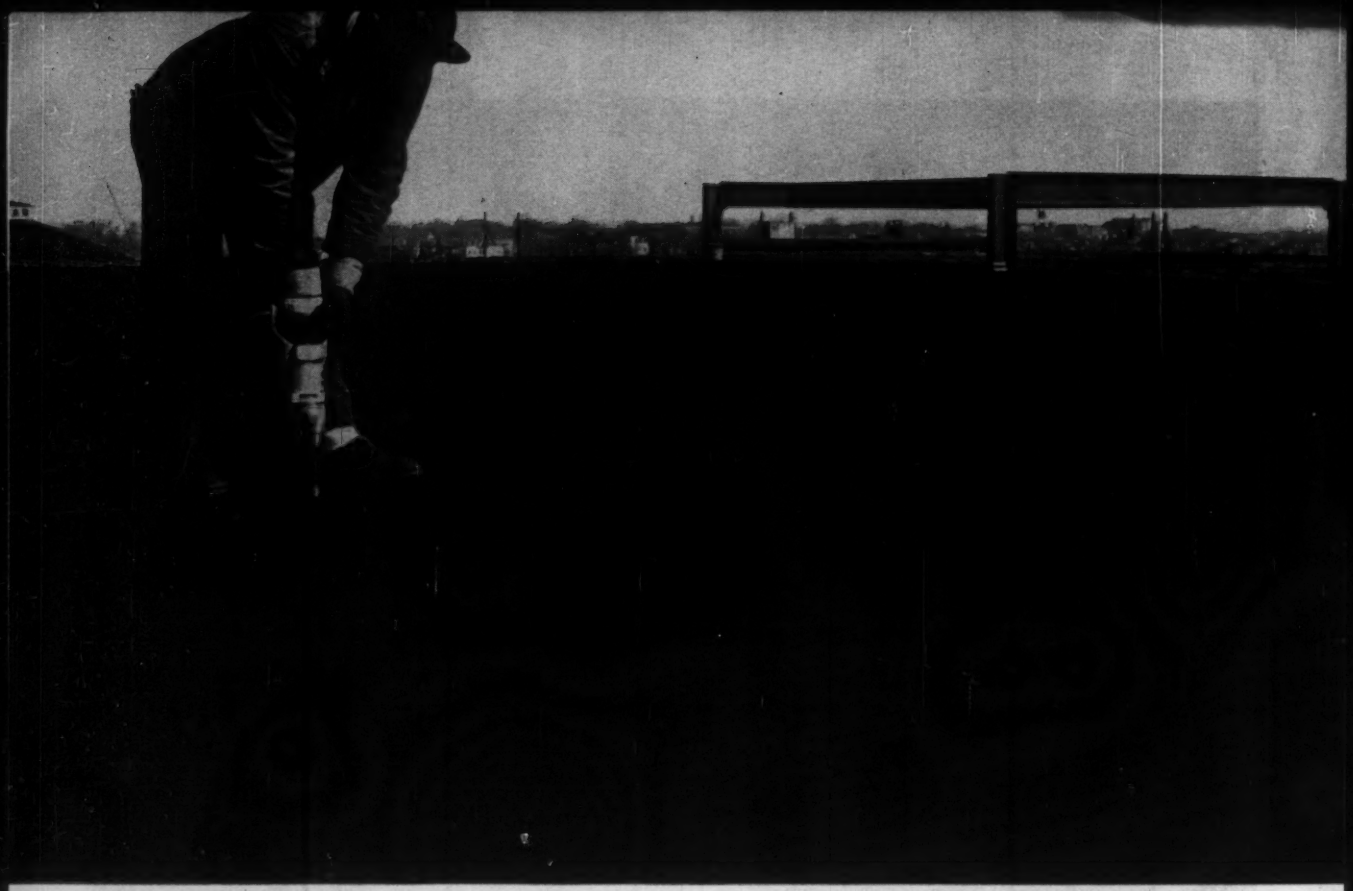
For normal weather conditions, J-M Placewel® is recommended. Johns-Manville's two concrete admixtures have gained the acceptance of architects and engineers throughout the world. For full information write: Johns-Manville, Box 14, New York 16, N. Y.

JOHNS-MANVILLE
Celite Division

JOHNS-MANVILLE JM PRODUCTS







Coated Fab-Form's red oxide coating shields the base steel from corrosive elements in concrete. Here, on the roof of Looman Associates Office Building in Trenton, N. J., coated Fab-Form was installed by a four-man crew in just one day. Architect, Kramer, Hirsch & Carchidi; Structural Engineer, Leonard Busch; Contractor, Belli Co.; all of Trenton. On this job, Fab-Form was distributed by American Steel Engineering Co., Philadelphia.

HOW TO SEE RED—AND LIKE IT

Pittsburgh Steel's New Coated Fab-Form Has "Better Corrosion Resistance," Says Philadelphia Contractor; "Goes Down Faster Than Other Steel Forms"

When a builder gets blood in his eye, you can bet he's scowling at a cost sheet.

But many a contractor, architect and builder is seeing red these days —and liking it.

They're the alert people who have used Pittsburgh Steel Company's coated Fab-Form, a new corrugated, permanent steel form for concrete floor and roof slabs.

They were quick to see these Fab-Form benefits:

• **Bonderized,** baked-on, red-oxide coating—shrugs off bad weather and shields the base steel from corrosive elements in concrete.

• **Extra length**—standard sizes or custom cut up to 28 feet, 3 inches.

• **Extra width**—32-inch cover width, the widest available.

• **Deeper corrugation**—full 5/8 inch in high-tensile (90,000-100,000 psi), 27-gage cold-rolled steel.

• **Case in Point**—G&H Steel Service of Drexel Hill, Pa., has laid 200,000 square feet of Fab-Form on two jobs designed for poured floors and roofs over steel joists.

G&H installed about 100,000 square feet of coated Fab-Form in the seven-story Looman Associates Office Building at Trenton, N. J.

Selected over other types of corrosion-resistant, permanent steel forms, coated Fab-Form lengths were engineered to the structural layout. Special 27-foot, 3-inch lengths saved the contractor—Belli Company of Trenton—material, time and installation costs.

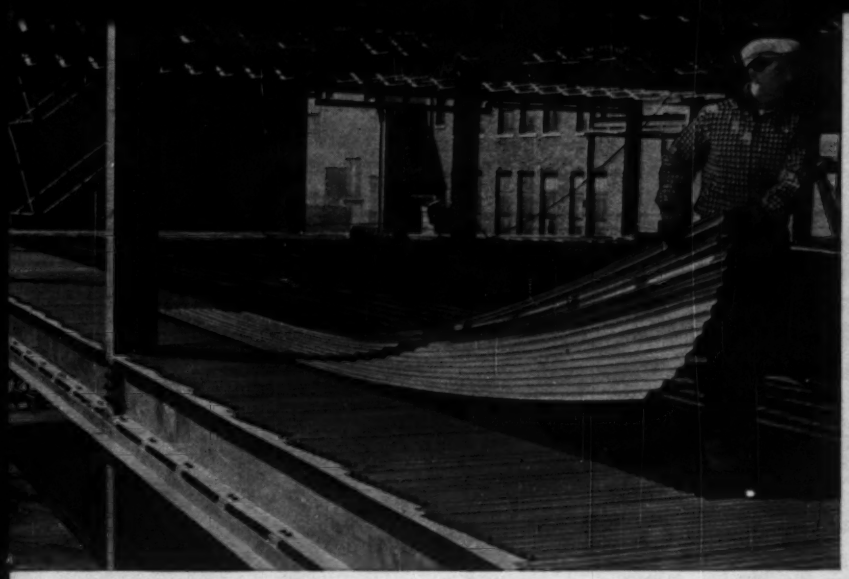
Joseph H. De Vido, Belli job superintendent, said:

"Fab-Form's extra-long length and wider width certainly helped to get these floors and roof poured faster. Its protective coating definitely makes a cleaner job. I'm convinced the red oxide finish has better corrosion resistance than other coated sheet material.

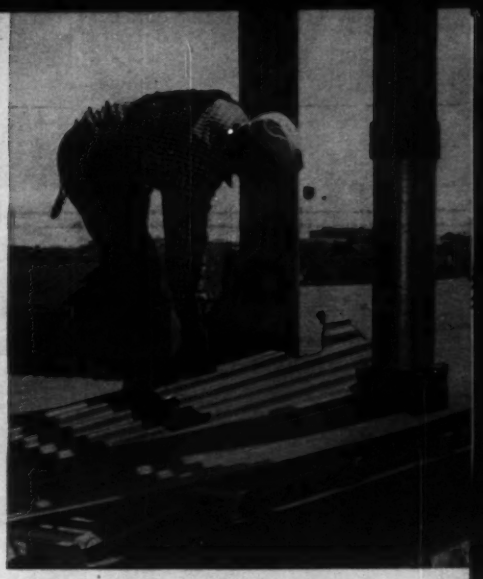
"Weather and rough handling don't seem to have any effect on the coating."

• **Easier, Faster**—G&H Foreman Bob Tindall agrees that longer, wider Fab-Form—with fewer end and side laps—"goes down faster" than other steel forms.

Using self-tapping screws to fasten Fab-Form to bar joists, Tindall and



Extra-long lengths of coated Fab-Form, 27 feet, 3 inches, were specially commended by job superintendent on Looman Building job. "Fab-Form's extra-long length and wider width certainly helped to get these floors and roof poured faster," he declared. "I'm convinced the red oxide finish has better corrosion resistance than other coated sheet material."



Precision-manufactured, Fab-Form easily fits around obstructions such as columns and pipes. Installation was easier and faster because corrugations line up precisely on end laps.

his three-man crew averaged a day and a half to install each floor on the Looman Building. Installing the obstruction-free roof deck took just a day.

Tindall said installation was easier and faster because Fab-Form's corrugations lined up precisely on end laps. No extra fitting effort was needed.

Fab-Form comes in plain steel, too, for applications where corrosion resistance is not a major factor.

G&H Steel Service first got Fab-Form's benefits when it installed 100,000 square feet of plain Fab-Form for floor and roof of Snellenburgs Department Store's new suburban branch in the Lawrence Park Center near Philadelphia.

• **Time, Material Saved**—Sizes on this engineered Fab-Form layout ranged from standard 12-foot, 3-inch lengths through special lengths up to 19 feet, 9 inches. This gave maximum savings of material with minimum installation time.

As with the Looman Building, Fab-Form was laid over steel joists with self-tapping screws to support a three-inch poured concrete roof and floor. Pittsburgh Steel's welded wire fabric was laid to give the slab reinforcement.

Job Superintendent Smith Harris of G&H Steel Service reported that installation was fast. Work crews had less trouble fitting side laps and matching end laps with Fab-Form than normally is encountered with other types of steel forms. He said:

"We ordered Fab-Form in lengths engineered to the job. Fab-Form's 32-inch cover width means fewer side laps and its longer lengths, fewer end laps. That adds up to less waste material and speedier installation —which means more money in our pocket."

If you, too, have blood in your eye from studying floor and roof deck costs, look to Pittsburgh Steel's new Fab-Form. Its built-in benefits will go to work for you. Write today for Fab-Form literature that shows how. Or, contact the nearest Pittsburgh Steel Products Division district sales office listed below.

Trained sales engineers are available to help you.

Self-tapping screws fasten uncoated Fab-Form sheets at Snellenburgs suburban store near Philadelphia. Architects and Engineers, Thalheimer and Weitz; Contractor, McCullough-Howard & Co., Inc., all of Philadelphia.

Fab-Form®

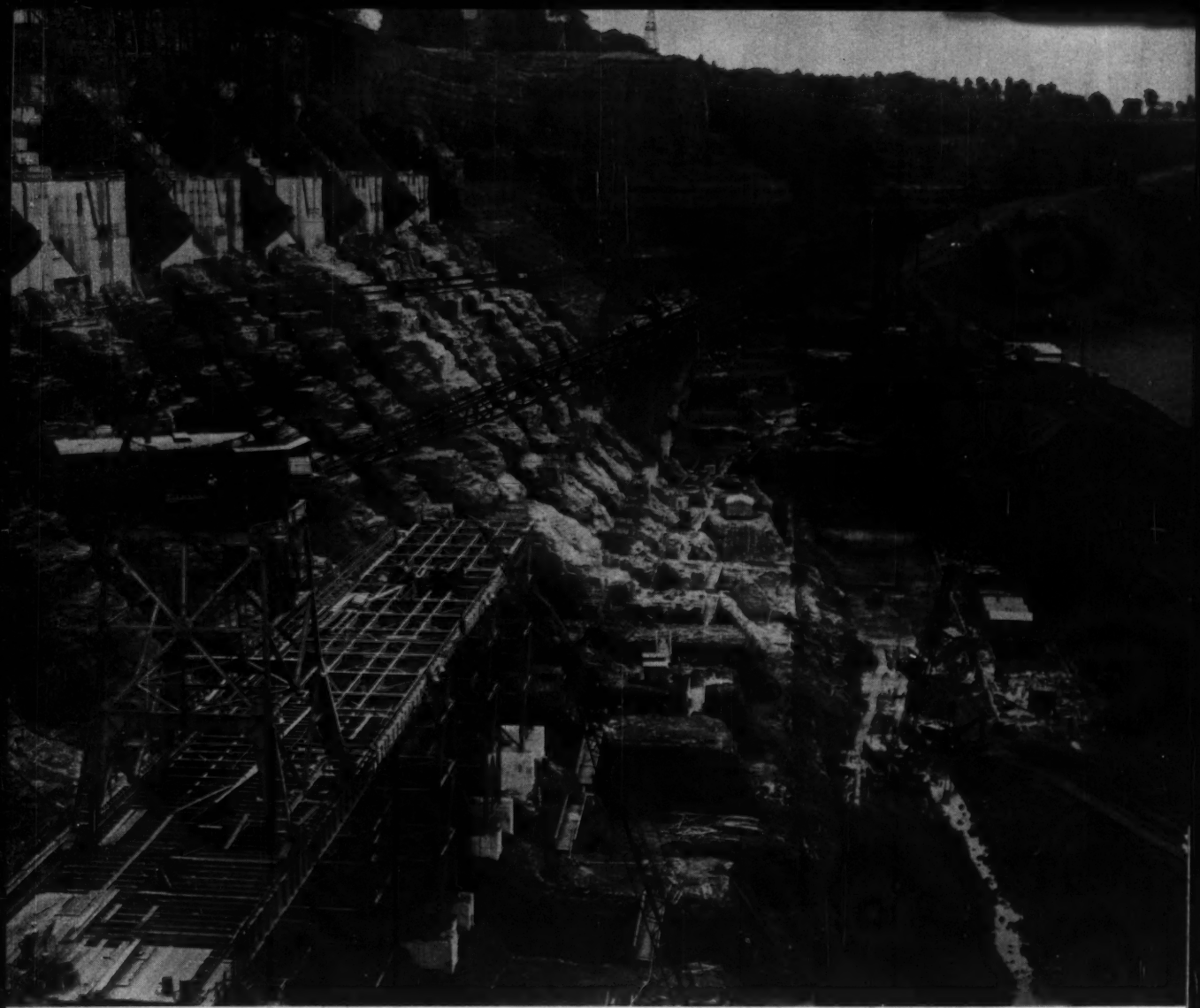
Pittsburgh Steel Products

a division of **Pittsburgh Steel Company**

Grant Building • Pittsburgh 30, Pa.

DISTRICT SALES OFFICES

Atlanta	Cleveland	Detroit	Los Angeles	Pittsburgh
Chicago	Dayton	Houston	New York	Tulsa
			Philadelphia	Warren, Ohio



New Niagara Generating Station will have 13 penstocks, each measuring 28 feet in diameter. With demand for explosives running at all time high Du Pont dynamite and blasting agents are being used in large quantities.

To get more power from Niagara

records and rocks are shattered with the help of Du Pont explosives

Almost everywhere you look at the Niagara power project you find records being broken.

To start with, this is the biggest concentrated construction job ever undertaken in a *developed* area. Every service line between the Falls and the outside world has been cut and relocated.

Then, over 30 million cubic yards of rock ultimately will be moved, the largest, most compact rock moving job ever undertaken.

Finally, there's the matter of explosives. Demand is running ten times that at Ripple Rock, the largest single non-atomic blast on record. Several million pounds of explosives will be delivered by Du Pont alone to the thirteen contractors. Which suggests that even though your next job may not involve breaking records, you will still probably be breaking rock. Contact the Du Pont representative or distributor in your area, or write to Du Pont Explosives Dept., Room 6444 Nemours Building, Wilmington 98, Del.

DU PONT EXPLOSIVES

DU PONT
REG. U.S. PAT. OFF.

Blasting Supplies and Accessories

Better Things for Better Living . . . *through Chemistry*

Tenn., Columbia—BA 8/2—City, City Hall, Contract E, sanitary sewer imprv., incl. lift stations, force mains, railroad crossings. $300,000. Plans deposit $50. CD 1/27/47.

† **La., Hammond**—ONE-BAY MAINTENANCE SHOP, etc.—BA 8/4—U. S. Eng., P. O. Box 1229, Galveston, Tex., one-bay maintenance shop, flexible base paving, grease rack and wash pad for Reserve Center. ENG-41-243-61-2. Plans deposit $10. Bids June 15, rejected. CD 5/17.

▲† **Fla., Key West**—HOUSING—BA 8/11—Dist. P. Wks. Office, Sixth Naval Dist. Bldg. No. 13. U. S. Naval Base, Charleston, S. C., Capehart Housing Proj. U. S. Naval Station, NBy CH 29105 Spec. 29105/60, REV. extended date. CD 6/14.

Va., Chantilly—FOOD SERVICE—BA 8/12—Federal Aviation Agency, 1711 New York Ave., N.W., Wash., Zone 25, D. C., build and operation food service, Dulles International Airport.

▲† **Georgia and South Carolina**—BA 8/16—U. S. Eng., P. O. Box 889, Savannah, Ga., relocating 1.56 mi. highway, 540 ft. long prestressed conc. bridge, relocating 1.21 mi. railway, 540 ft. steel plate girder bridge and removal and disposal existing railway and highway bridges, relocation S.C. State Rd. 37 and C and N.W. Railway Seneca River Crossing, CIVENG-09-133-61-1. $2,000,000. CD 9/29.

† **Tennessee**—BA 9/1—Soil Conservation Service Dpt. Agriculture, 561 U. S. Court House, Nashville, Zone 3, 1 earthfill floodwater retarding structure Site 21, incld. 71.76 ac. clearing, 15 ac. clearing and grubbing, 7,613 cu. yd. excaavtion for Muddy Creek Watershed, Hardeman Co., 12-10-001-604.

BUILDINGS—BA

Ala., Fayette—SCHOOL—BA 7/12—Fayette Co. Bd. Educ., West Highland High School, $425,000. Evan M. Terry, 2129 Montgomery Highway, Birmingham, archt.

Tenn., Woodbury—PLANT—BA 7/12—Cannon County, mfg. plant, $125,000. Burkhalter, Hickerson & Assocs., 908 2 Ave., S. Nashville, archts. CD 6/23.

Fla., Fern Park—POST OFFICE—BA 7/18—Post Office Dpt. Box 4964, Jacksonville, build and lease, post office.

Ala., Tuscaloosa—OFFICE—BA 7/19—State Oil & Gas Bd., office, $600,000. Martin J. Lide, 2201 Highland Ave., Birmingham, archt.

Ala., Troy—SCIENCE—BA 7/26—Troy State Teachers College, science, $425,000. Pearson, Tittle & Narrows, First National Bank Bldg., Montgomery, archts.

▲ **Va., Chantilly**—HOTEL—BA 9/2—Director, Bureau National Capital Airport, Federal Aviation Agency, 1711 New York Ave., N.W., Wash. Zone 25, D. C., build-lease 200 room Hotel, Dulles International Airport, Federal Aviation Agency.

HEAVY CONSTRUCTION—LB & CA

† **VIRGINIA**—Bureau P. Roads, Dpt. Commerce, 1554 Columbia Pike, Arlington,

Case Constr. Corp., Mount Airy, Md., CA **$816,313** (14 bidders) 2 structural steel girder bridges with conc. floors, abutments and piers over Turkey Run and Dead Run, Proj. 1A17, 1A18, George Washington Memorial Parkway, Bids June 9. Awarded June 29. CD 6/15 under LB.

† **Arnold M. Diamond, Inc.**, 115 Middle Neck Rd., Great Neck, N. Y., LB **$220,000**, conversion of Engine Test Cells, NBy 24626, CHERRY POINT, N. C., U. S. Navy Dist. P. Wks. Office, 5th Naval Dist., U. S. Naval Base, Norfolk 11, Va. Bids June 28. CD 6/9.

City of Hickory, City Hall, Hickory, N. C. Cancelled bids to have been opened June 30, runway extension, parallel taxiway, Municipal Airport, $100,000. HICKORY, N. C. John T. Talbert & Assocs., P. O. Box 1394, Wilmington, N. C., engrs. CD 6/22.

Lambeth Constr. Co., 1071 Retreat St., Greensboro, N. C. LB **$105,053**, water lines, HIGH POINT, N. C. City, City Hall, High Point, N. C. Bids June 29.

▲† **Williams Paving Co., Inc.**, 1269 E. Princess Anne Rd., Norfolk, Va., CA **$3,629,372** airfield paving and lighting McCoy Air Force Base, ENG-08-123-60-75, ORLANDO, FLA. U. S. Eng., Box 4970, Jacksonville, Fla. Bids June 23. CD 6/28 under LB.

WEST VIRGINIA—State Road Comm., Charleston, Zone 5,

Harman Brothers, P. O. Box 475, Grafton, W. Va., CA **$743,062**, grading, draining, traf. bd. base course and b. conc. bottom and wearing courses 2.72 mi. Sistersvill-East Rd., Proj. S.18(5), Tyler Co. Bids June 21. Awarded June 28. CD 6/28 under LB.

† **North Carolina**—Bureau P. Rds., Gatlinburg, Tenn.

Macon Constr. Co., Franklin, N. C., CA **$856,175** Proj. 2U1, grading, draining, tunnel with lining, crushed aggreg. base, bit. surf. treatment, from Flat Laurel Gap 3.516 mi. to Wagon Rd. Gap. Bids June 23. Awarded June 30. CD 6/28 under LB.

† **International Builders of Florida**, 69 Merrick Way, Coral Gables, Fla., LB **$127,766**, radar micro-wave link repeater stations from Valdosta, Georgia, to Hilliard Florida, GEORGIA AND FLORIDA, Federal Aviation Agency, P. O. Box 1689, Fort Worth, Tex.

† **Southern Waldrip & Harvick Constr. Co.**, 2650 Cherry Ave., Long Beach, Calif. LB **$349,894**, 2 maintenance docks, Turner Air Force Base, IFB 33-600-60-211, ALBANY, GA., Aeronautical System Center, Wright Patterson Air Force Base, Columbus, O. Bids June 20. CD 6/21.

▲ **Ballenger Paving Co.**, P. O. Box 2285, Greenville, S. C., CA **$1,240,162** underpass Main and Church St., East Point, ATLANTA, GA., Fulton Co. Bd. Comrs., 165 Central Ave., S.W., Atlanta, Ga.

▲ **FLORIDA**—State Hy. Dpt., Tallahassee,

Brinson-Allen Constr. Co., Box 2641, Tampa, Zone 1, Fla., CA **$1,094,327**, 4-lane divided facility, extra-heavy excavation and embankment, limerock base with Type 1-B bit. surf. tr., binder and Type I b. conc. surf. course 6 conc. box-culverts, 4.033 mi. FA Proj. U 027-1(1) Job No. 10140-3501 State Job No. 10270-3501 State Rte. 60 and 589, Tampa, Columbus Dr., between east approach to Courtney Campbell Parkway and State Rte. 600 via Spruce St., Hillsborough Co. Bids May 26. Awarded 7/5. CD 6/2 under LB.

† **B. B. McCormick & Son**, P. O. Box 248, Jacksonville Beach, Fla., LB **$93,923** transfer facilities, Mobile Minuteman, Patrick Air Force Base. ENG. 08-123-60-81, COCOA, FLA., U. S. Eng., P. O. Box 4970, Jacksonville, Fla. Bids June 30. CD 6/16.

† **Parkhill-Goodloe Co., Inc.**, P. O. Box 8707, Jacksonville, Fla., LB **$172,147**, dredging channel and turning basin for Saturn unloading facilities, Patrick Air Force Base, ENG. 08-123-60-66. COCOA, FLA., U. S. Eng., P. O. Box 4970, Jacksonville, Fla. Bids June 21. CD 6/10/59.

▲ **Wylie N. Jackson**, 547 Indiana Ave., Orlando, Fla., CA **$1,489,130** expressway roadwork between Palmetto St. overpass and Mathews Bridge, Proj. 72040-3501 JACKSONVILLE, FLA., Jacksonville Expressway Auth., 1022 Miami Rd., Jacksonville, Fla. Bids June 17. CD 6/13.

▲† **American Bridge Co.**, Bridge St., Gary, Ind. and Blount Bros. Constr. Co., 79 Commerce St., Montgomery Ala., CA **$2,500,000** lift span bridge, Wilson Dam, Florence, ALABAMA, Tennessee Valley Auth., 410 Union Ave., Knoxville, Tenn.

▲ **Keller Constr. Co.**, 7900 Palm St., New Orleans, La., CA., GLASS CONTAINER PLANT, Inner Harbor Industrial Canal, NEW ORLEANS, LA. Owens-Illinois Glass Co., Owens-Illinois Bldg., Toledo, O. CD 3/11/59.

▲† **Ross E. Cox Contractors**, 4835 Adams St., Baton Rouge, La., LB **$1,549,939**, rehabilitation, 859 Wherry Housing units, Kessler Air Force Base. IFB 22-600-60-76, BILOXI, MISS. Base Purchasing Office, Kessler Air Force Base, Biloxi, Miss. Bids June 29. CD 6/29.

▲ **Southeastern Constr. Co.**, First National Bank Bldg., P. O. Box 1197, Jackson, Miss., CA **$2,242,000**, general ocntract, structural steel, concrete piles prestressed concrete, 10,000 seat coliseum, JACKSON, MISS. State Bldg. Comn., 1503 Woolfolk State Office, Jackson, Miss. Bids June 16. Awarded June 29. CD 5/26.

South Central Heating & Plumbing Co., 2666 N. Mill St., Jackson, Miss., CA **$851,936** mechanical work, Coliseum (Jackson, Miss.).

▲ **KENTUCKY**—Commonwealth of Ky., Dpt. Hys., Frankfort, Bids opened 7/1,

Ky.—**Henderson Hite Constr. Co.**, P.O. Box 54, Bardstown, Ky., LB **$92,488**, (12 bidders), traffic bound surf. 3.808 mi. Hardesty Ridge Rd. RS 108-487, Spencer Co. CD 6/9;

Ky.—**Greer Bros. & Young**, N. Main St., P.O. Box 346, London, Ky., LB **$143,766**, traffic bound surf. 0.414 mi. Hardesty Ridge Rd., RS 108-487, Parts 1 & II, Spencer Co. CD 6/9;

Ky.—**Foster & Creighton**, 724 1st American National Bank Bldg., Nashville, Tenn., LB **$2,264,600**, (6 bidders), c. conc. pavement 2.849 mi. Henderson-Evansville, U 51 (13) U 526 (23) FG 526(15) F 526(14), Henderson Co. CD 6/15.

▲ **KENTUCKY**—Commonwealth of Ky., Dpt. Hys., Frankfort,

Wood & Bush Co., 410 Ann St., Frankfort, Ky., CA **$2,625,825**, high type surf. 0.321 mi. Lexington-Covington, I-75-6(5)123, S 291(2), S 370(2), Scott Co., CA **$1,147,247**, grade, drain 3.863 mi. Covington-Tenn. State Line, I 75-6(4) 129, Scott Co. Bids June 17. CD 6/22, under LB.

Ky.—**Corum & Edwards, Inc.**, Madisonville, Ky., LB **$208,440**, (5 bidders), bit. surf. Class L, 29.446 mi. various roads. RS Gr. 1(60), Logan Co., CD 6/15,

Ky.—**Oman Constr. Co., Inc.**, P. O. Box 146, Nashville, Tenn., LB **$1,276,522**, (7 bidders), high type surf. 1.864 mi. Louisville-Lexington I 64-2 (14) 16 F 552(3), Jefferson Co. CD 6/9,

▲ **TENNESSEE**—State Hy. Dept., Cotton State Bldg., Nashville, Bids opened 6/24,

TENN.—**Oman Constr. Co.**, Oman St., Nashville, Tenn., LB **$1,346,475**, three bridges, 1 conc., deck girder viaduct over Southern Railway yards, Knoxville; 2 conc. box type drainage structures under viaduct 0.509 mi., Int. Rte. 75, beginning south of Heiskill Ave., Knoxville southward to south of Tennessee Ave., Proj. I-75-3(10)87. Knox Co. CD 6/14.

▲ **TENNESSEE**—State Hy. Dept., Cotton State Bldg., Nashville, Bids opened 6/24,

TENN.—**Knoxville Constr. Co.**, P. O. Box 1847, Neyland Dr., Knoxville, Tenn., LB **$274,912**, resurf 9.887 mi., State Rte. 9, beginning near S-2474, Claxton to Sharp's Gap interchange near Knoxville north city limit. Proj. SP-2053-A, Anderson and Knox Counties,

TENN.—**Tennessee Asphalt Co.** P. O. Box 413, Candoro Ave., Knoxville, Tenn., LB **$555,126**, grading, drainage, paving 0.793 mi., State Rte. 63 (Central and East Aves., LaFollette), Beginning at Indiana St. to NE city limit, Proj. U-085-1(4); grading, drainage, one conc. box type bridge 0.444 mi., State Rte. 63, beginning at NE city limit, LaFollette; northeasterly, Proj. F-085-1(2), Campbell Co.,

TENN.—**Burton Constr., Co.**, 2720 Nolensville Rd., Nashville, Tenn., LB **$233,023**, grading, drainage, surf. with crushed stone, two conc. deck girder bridges, 2.965 mi., Secondary Rte. 2526, pt. near Friendly Valley Church easterly to S-2526(1) near Stinking Creek School, Proj. S-2526(2), Campbell Co.,

TENN.—**Inter-State Constr. Co.**, P. O. Box 7245, 820 Harsh Ave., Nashville, LB **$124,609**, grading, drainage, surf., two conc. box type bridges 2.660 mi., Secondary Rte. 4255, beginning at State Rte. 53 east of Woodbury eastward to pt. near Shanborne Branch, Proj. S-4255(1), Cannon Co.,

TENN.—**Summers-Taylor Paving Co.**, P. O. Box 628, Elk Ave., Elizabethton, Tenn., LB **$389,326**, removing, benching of landslides, etc., resurf. 10.09 mi., State Rte. 67, beginning 2.55 mi. NE of State Rte. 37 to 1.5 mi. NE of Carter-Johnson Co. line, Proj. SP-950-B, Carter and Johnson Counties,

TENN.—**J. B. Michael & Co.**, P. O. Box 5895, 1021 Heywood St., Memphis, Tenn., LB **$286,922**, resurf. 8.71 mi., State Rte. 5, beginning north city limit, Henderson to jct. State Rte. 5-A; wid'n, resurf. State Rte. 5, beginning jct. State Rte. 5-A to 4-lane pavt, Madison Co., Proj. SP-715-B; resurf 2.72 mi., State Rte. 5-A, beginning end of curb and gutter section, Henderson to jct. State Rte. 5 north of Henderson, Proj. SP-715-C, Chester and Madison Counties,

TENN.—**Burns and Baker**, 726 16th Ave., S., Nashville, Tenn., LB **$728,029**, grading, drainage, paving, two conc. deck girder bridges, 3.315 mi., State Rte. 1 loop (Dickson Bypass), beginning State Rte. 1 near west city limit; easterly and north of business section to State Rte. 1 near east city limit, Proj. F-001-4 (27), Dickson Co.,

TENN.—**Blanton and Coke**, Adamsville, Tenn., LB **$208,451**, grading, drainage, surf., one bridge 7.124 mi., Secondary Rte. 6321, beginning at S-6120 betw. Slayden and Van Leer near State Rte. 49 northeast to State Rte. 48 near Dickson-Montgomery Co. line, Proj. S-6321(1), Dickson and Montgomery Counties,

TENN.—**Bowyer and Johnson**, 214 Crook Bldg., Jackson, Tenn., LB **$149,594**, grading, drainage, surf. 3.538 mi., State Rte. 22, beginning at State Rte. 142 near south boundary Shiloh National Park to north boundary of park, Proj. F-017 1(1), Hardin Co.,

TENN.—**G & N Constr. Co.**, P. O. Box 254, Morford St., McMinville, Tenn., LB **$146,443**, grading, drainage, one conc. deck girder bridge, surf. 5.722 mi., Secondary Rte. 6197, beginning Iron City to State Rte. 13 at Pleasant Spring Church, Proj. S-6197(3), Lawrence and Wayne Counties,

TENN.—**Mid-Tenn. Paving**, P. O. Box 81, Dickson, Tenn., LB **$24,300**, surf. 3.90 mi., Rural Rd. 5561 (Windle-Rickman Rd.), Beginning R-5263, 1.5 mi. NW of Sulphur south to R-5094, 1 mi. north of Rickman, Proj. R-5561(2), Overton Co.,

TENN.—**Road-Builders Inc.**, 718 Murfreesboro Rd., Nashville, Tenn., LB **$88,468**, resurf. 9.173 mi. State Rte. 24, beginning State Rte. 42, Cookesville easterly to 1.3 mi. east of Bullock Creek Bridge, Proj. SP-371-H, Putnam Co.,

TENN.—**Gallatin Paving Co.**, Gallatin, Tenn., LB **$109,784**, resurf. 12.11 mi., State Rte. 10, beginning State Rte. 25, east of Hartsville, to SW corner of Lafayette Public Square, Proj. SP-551-F, Trousdale and Macon Counties,

TENN.—**Warren Brothers Roads**, 1201 8th Ave., S., Nashville, Tenn., LB **$188,469**, resurf., State Rte. 6, beginning at Maury Co. line at Spring Hill to Franklin south city limit, Proj. SP-388-E, Williamson Co.,

TENN.—**Inter-State Constr. Co.**, 820 Harsh Ave., Nashville, Tenn., LB **$258,251**, Resurf. 9.08 mi., State Rte. 24, beginning 0.7 mi. east of State Rte. 26 near east city limit, Lebanon to Smith Co. line, Proj. SP-575-J, Wilson Co.,

Tenn.—**Farrar Constr. Co.**, McMinnville, Tenn., LB **$123,974**, resurf. 10.38 mi., State Rte. 1, beginning Cannon Co. line to Jct. By-Pass west of McMinnville, Proj. SP-702-C, Warren Co., CD 6/14.

BUILDINGS—LB & CA

Z. B. Robinson Constr. and Engr. Co., P. O. Box 512, Asheville, N. C., CA **$684,000**, BROOKS-HOWELL HOME, ASHEVILLE, N. C. Women's Div. Christian Service of Methodist Church, 5122 Davenport St., Omaha, Neb. Bids June 3. CD 6/15.

Taddeo Constr. Co., Inc., 873 Merchant Rd., Rochester, N. Y., CA est., **$600,000**, BOWLING CENTER, CHARLOTTE, N. C. American Bowling Enterprises, 873 Merchant Rd., Rochester, N. Y.

▲ **R. C. Speas**, 3388 Nottingham Rd., Winston-Salem, N. C., CA est. **$1,000,000**, MOTOR HOTEL, WINSTON-SALEM, N. C. Elam Investment Corp., 1108 Burke St., Winston-Salem, N. C. CD 3/17.

▲ **Harper Builders Supply, Inc.**, P. O. Box 461, Williamston, S. C., CA **$1,209,843**, girls high SCHOOL, ANDERSON, S. C., Anderson School Dist. 5, S. Fant St., Anderson, S. C. Bids June 14. CD 6/22, under LB.

▲ **Harry R. Forman**, 105 Silver Springs Rd., Milwaukee, Wis., CA **$3,477,000**, build and lease POST OFFICE and GARAGE, GREENVILLE, S. C., U. S. Post Office Dpt., P. O. Dpt. Bldg. 12 and Penn Ave., N.W., Wash., D. C., Bids June 1. CD 6/6, under LB.

▲ **A. C. Samford Co., Inc.**, P.O. Box 1229, Albany, Ga., CA **$1,279,344** 150 HOUSING units UNION, S. C., Union Housing Auth., City Hall, Union, S. C., Bids June 16, CD 6/23 under LB.

▲ **C. Y. Thomason Co.** P. O. Box 232, Greenwood, S. C., CA **$1,634,700** HOSPITAL SENECA, S. C., Oconee Memorial Hospital, Walhalla Highway, Seneca, S. C., Bids June 8, CD 6/14 under LB.

▲ **The Colte Somers Co.**, P.O. Box 111, Vidalia, Ga., LB $2,351,000, HOSPITAL, NEWNAN, GA. Coweta County Hospital Auth., Newnan, Ga. Bids June 24. CD 6/7.

▲ **Peacock Constr. Co.**, 1240 Greene St., Augusta, Ga., LB $1,244,088, HOSPITAL, CANTON, GA., Cherokee Co. Hospital Auth., Canton, Ga. Bids June 28. CD 6/8.

▲ **Pattillo Constr. Co.**, P. O. Box 570, Decatur, Ga., CA $3,750,000 BANK, office, parking deck, DECATUR, GA. Decatur Federal Savings & Loan Assoc., 103 Sycamore St., Decatur, Ga.

▲ **Claussen & Webster Constr. Co.**, P. O. Box 840, Augusta, Ga., CA $1,000,000, SHOPPING CENTER, FORT WALTON, FLA., Paramount Shopping Center, Inc., P. O. Box 507, Fort Walton, Fla.

▲ **Taylor International**, 2875 NW 42 Ave., Miami, Fla., separate contracts. $2,000,000, 52 unit, 168,000 sq. ft. APARTMENT, MIAMI BEACH, FLA. B. Robert Swartburg, 4014 Chase Ave., Miami Beach, Fla., archt.

▲ **William A. Berbusse Jr., Inc.**, 322 Royal Palm Way, Palm Beach, Fla., LB Base Bid A $1,186,000, LB Base Bid B, $1,151,000 (11 bidders), RESIDENCES HALLS, Womens Dormitory, University of Southern Fla., TAMPA, FLA. Florida State Bd. Control, County Courthouse, Tallahassee, Fla. Bids June 29. CD 6/15.

▲ **Heftler Constr. Co.**, 4102 NW 183 St., Opa Locka, Fla. Owner builds, $1,000,000, 95 one story 40 x 42 CB-S RESIDENCES, SW 98 Court and SW 77 St., MIAMI, FLA., Gerber, Pancani & Crowder, DuPont Plaza Center, Miami, Fla., archts.

▲ **Daniel Constr. Co.**, P. O. Box 10085, Jacksonville, Fla., CA $7,000,000, Phillips Highway Plaza, SHOPPING CENTER, JACKSONVILLE, FLA., Food Fair Properties, Inc., 355 Lexington Ave., New York, N. Y.

▲ **The Auchter Co.**, P. O. Box 1193, Jacksonville, Fla., CA $1,000,000, 16 story APARTMENT, St. John's Ave. and Fishweir Creek, JACKSONVILLE, FLA., Charles E. Commander, 318 W. Forsyth St., Jacksonville, Fla.

▲ **R. M. Thompson**, P. O. Box 1049, Clearwater, Fla., CA $1,500,000, 225,000 sq. ft. SHOPPING CENTER, HOLLYWOOD, FLA., Taft Plaza Shopping Center, 1000 Lincoln Rd., Miami Beach, Fla.

▲† **Pittsburgh Piping & Equipment Co.**, 158 49 St., Pittsburgh, Pa., CA $1,600,000, (4 bidders), piping systems and appurtenances, Colbert STEAM PLANT, ALABAMA. Tennessee Valley Auth., New Sprankles Bldg., Knoxville, Tenn. Awarded July 2. CD 1/23/59.

▲ **Jahle Bros.**, 1616 Mount Meigs Rd., Montgomery, Ala., CA $2,500,000, 14 story, 200,000 sq. ft. doctor's OFFICE, BIRMINGHAM, ALA., Southeastern Properties, Inc., 1616 Mount Meigs Rd., Montgomery, Ala. CD 6/24.

† **Whalley Co.**, 6424 1 Ave. N., Birmingham, Ala., CA $584,919, 3 story, HOSPITAL, Redstone Arsenal, HUNTSVILLE, ALA. U. S. Eng., P.O. Box 1169, Mobile, Ala. Bids June 16, awarded July 1. CD 6/30, under LB.

▲ **Merritt & Raines**, 3016 Pleasant Valley Rd., Mobile, Ala., Day Labor, $5,000,000, 520 RESIDENCES, third unit, Malibar Heights Subdivision, MOBILE, ALA.

▲ **The Jordan Co.**, P. O. Box 1179, Columbus, Ga., CA $1,666,000, 200 unit HOUSING Project ALA-5-5 PHENIX CITY, ALA., Phenix City Housing Auth., 200 16 St., Phenix City, Ala. Bids June 7. CD 6/22, under LB.

▲ **G. E. Bass & Co.**, 2715 North State St., Jackson, Miss., CA $1,075,484, ENTOMOLOGY RESEARCH LABORATORY, Mississippi State College, STATE COLLEGE, MISS. General Services Admin., 50 Seventh St., N. E., Atlanta 23, Ga. Bids June 21. CD 6/23 under LB.

▲ **Leo C. Miller Co., Inc.**, 329 E. Barbee, Louisville 17, Ky., LB $1,011,500, est. $1,200,000, 3 story, 75,000 sq. ft. SCIENCE BLDG., Western Kentucky State University, BOWLING GREEN, KY. Commonwealth of Ky., Div. of Purchases, Frankfort, Ky. Bids June 30. CD 6/17.

▲† **Pacific Pumps, Inc.**, Bickett and Slauson Sts., Huntington Park, Calif., CA $1,049,437, (6 bidders), PUMPING UNITS, Paradise Steam Plant, PARADISE, KY. Tennessee Valley Auth., New Sprankles Bldg., Knoxville, Tenn. Grand total $2,938,721. Awarded July 2. CD 3/25;
American Radiator Corp., 1440 Macabe Bldg., Detroit, Mich., CA $1,624,284, forced draft fans, Paradise Steam Plant (Paradise, Ky.);
Westinghouse Elec. Corp., 3 Gateway Center, Pittsburgh, Pa., CA $265,000, fash evaporator for Paradise Steam Plant (Paradise, Ky.).

▲ **Aluminum Co. of America**, Alcoa, Tenn., Day Labor, $1,000,000, sheet MILL addn., ALCOA, TENN. CD 12/10/58.

▲ **Rea Constr. Co.**, P. O. Box 1092, Charlotte, N. C., CA $2,500,000, SHOPPING CENTER, CLEVELAND, TENN., Jajco, Inc., 1020 Barnes St., N. E., Cleveland, Tenn. Toombs, Amisano & Wells, 70 Fairlie St., N.W., Atlanta, Ga., archts.

▲ **H. E. Collins Contracting Co.**, 793 E. 9 St., Chattanooga, Tenn., CA $2,500,000, 92 APARTMENT units, CHATTANOOGA, TENN., Hill Crest Manor, Inc., 793 E. 9 St., Chattanooga, Tenn., Bianculli & Palm, Volunteer Bldg., Chattanooga, Tenn., archts.

▲ **James Allen McNutt**, 4600 Alta Vista Way, Knoxville, Tenn., Day Labor, $1,500,000, 100 RESIDENCES, McNutt Subdivision, KNOXVILLE, TENN.

▲ **Massengill Realty Co.**, 112 N. Cumberland St., Morristown, Tenn., Day Labor, $1,000,000, 100 RESIDENCES, MORRISTOWN, TENN.

▲ **Randall Phillips**, 3100 Ambrose Ave., Nashville, Tenn., Day Labor, $1,000,000, 70 RESIDENCES, MURFREESBORO, TENN.

▲ **Rock City Constr. Co.**, 4401 Kentucky Ave., Nashville, Tenn., CA $3,853,066, city AUDITORIUM, NASHVILLE, TENN. City, City Hall, Nashville, Tenn. Bids May 24. CD 6/1, under LB.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

O., Cincinnati—BA 7/19—Bd. Comrs. Hamilton Co., Courthouse, widening, Plainfield Rd. from Blue Ash to Myrtle Ave., $400,000. George Lemmel, county engr. CD 11/9/56.

Indiana—BA 7/20—Tri-County Telephone Co., Inc., New Richmond, 275.03 mi. telephone lines, 1,127 station installations, Tippecanoe, Montgomery and Fountain Counties, Proj. Indiana 541A, Tri-Co. Plans deposit $10. Philip L. Burns, 630 Davenport Bank Bldg., Davenport, Iowa, engr.

Ill., Chicago—BA 7/22—Bd. Local Imprvts., City Hall Zone 2, c. conc. paving four streets, bit. surf. 9 alleys $240,000. Hugh Short, City Hall, zone 2, ch. engr. CD 10/23.

† **Mich., Seney**—BA 7/22—U. S. Dpt. Interior, Fish & Wildlife Service, 721 W. Lake St., Minneapolis 8, Minn., rein.-con. water control structure, Seney National Wildlife Refuge.

† **Ill., Rantoul**—HEATING PLANT—BA 7/25—Procurement Office, Chanute Air Force Base, modifying heating plant, Chanute Air Force Base, IFB 11-602-60-89. CD 4/5/51.

O., Cleveland—BA 7/28—Bd. Comrs. Cuyahoga Co., County Admin. Bldg., 1219 Ontario St., Zone 13, repair bridge No. 159 and 150, Chagrin River Rd., Gates Mills, $105,500. Albert S. Porter, Standard Bldg., city engr.

BUILDINGS—BA

† **Ill., LaGrange** — POST OFFICE—BA 7/27—General Services Admin., 219 S. Clark St., Chicago, U. S. Post Office modernizing, extension.

O., Warren—SCHOOL—BA 7/27—Howland Twp. Bd. Educ. 200 Shaffer Dr. NW, elementary school, Howland-Wilson Rd., Plans deposit $50. Arthur F. Siddels, 2660 South St. SE, archt. CD 4/12.

HEAVY CONSTRUCTION—LB & CA

▲ **OHIO**—Dept. Hys., State Dept. Bldg., Columbus, Zone 15. Bids opened 6/28.

OHIO—**E. J. Meyer and Sons, Inc.**, R. R. #2, Ottawa, O., LB $147,747, (3 bidders), Type T-35 and structure repair 0.747 mi., SR 117-(5.42) (6.06) (11.42) (12.40), S-1132 (5), Proj. No. 286, Allen Co.

OHIO—**The Clinton Asphalt Paving Co.**, 805 E. Columbus St., Wilmington, O., LB $154,814, (1 bidder), Type T-35 on B-19 0.649 mi., SR 73-7.99, US-45(3), City of Wilmington, Proj. 287, Clinton Co.,

OHIO—**Wander & Mason, Inc.**, 1028 Proprietors Rd., Worthington, O., LB $127,746, (11 bidders), Type T-35 on B-19 and structure 0.296 mi., SR 521-6.54, S-22(2), Proj. No. 288, Delaware Co.,

OHIO—**Engle Constr. Co.**, Box 86, McArthur, O., LB $264,648, (4 bidders), Type T-35 on B-20 1.931 mi., SR 180-(14.67-14.77), S-171(3), Proj. No. 289, Hocking Co.,

OHIO—**A. Bentley & Sons Co.**, 201 Belmont Ave., Toledo, Ohio, LB $193,605, (3 bidders), Type grading 0.107 mi., USR 25-0.19, I-75-6(10)200, City of Toledo, Proj. No. 290, Lucas Co.

OHIO—**John F. Casey Co.**, P. O. Box 1888, Pittsburgh, Pa., LB $7,420,674, (8 bidders) Type T-71 and structures, 4.284 mi., SR 18-17.20, I-680-9(1)222, City of Youngstown, Proj. No. 291, Mahoning Co.

OHIO—**Rhoten Constr. Co.**, 16 E. Broad St., Columbus, Ohio, LB $177,523, (2 bidders), Type T-31 and B-219 on B-19, 3.360 mi. SR 19-5.26, S-518(2), Proj. No. 292, Morrow Co.

OHIO—**Peter Kiewit Sons Co.**, 15806 Lorain Ave., Cleveland, Ohio, LB $1,254,958, (10 bidders), Type T-71 and structure 1.775 mi., USR 40-9.66, I-70-7 (6)155, Proj. No. 293, Muskingum Co.

OHIO—**V. N. Holderman & Sons Co.**, 890 Oakland Park Ave., Columbus, Ohio, LB $1,242,130, (12 bidders), Type T-71 and structures 0.682 mi., USR 40-11.52, I-70-7(18)157, City of Zanesville, Proj. No. 294, Muskingum Co.

OHIO—**John G. Ruhlin Constr. Co. and Herman H. Miller & Son**, 1024 Home Ave., Akron, Ohio, LB $2,446,442, (8 bidders), Type T-71 and Structures 3.400 mi., USR 224-2.58, F-FG-458(18), Proj. No. 295, Summit Co.

OHIO—**Glenn Rhoades Constr. Co.**, Mt. Orab, Ohio, LB $240,130, (2 bidders), Type T-35, 2.537 mi., SR 125-3.90, Proj. No. 298, Brown Co.

OHIO—**Clinton Asphalt Paving Co.**, 805 E. Columbus St., Wilmington, Ohio, LB $198,439, (1 bidder), Type T-35, 6.84 mi., USR 68-(16.11) (22.24), Proj. No. 300, Clinton Co.

OHIO—**D. E. Goodchild, Inc.**, P. O. Box 184, Circleville, Ohio, LB $638,823, (5 bidders), Type T-35, 4.658 mi., USR 22-0.00, (19.58-20.52), Proj. No. 301, Fairfield and Pickaway Counties.

OHIO—**Clinton Asphalt Paving Co.**, 805 E. Columbus St., Wilmington, Ohio, LB $89,517, (2 bidders), Type T-35 On B-219, 0.585 mi., SR 70-5.37, Village of Jeffersonville. Proj. No. 302, Fayette Co.

OHIO—**Blue Rock Paving Corp.**, 129 N. Hinde St., Washington C. H., Ohio, LB $461,684, (2 bidders), Type T-30, B-35, T-35, 26.58 mi., (Pts. 1 to 6 incl.) Highland-SR 70-0.00; SR 70-(2.40, 2.55 (PT.) Greenfield); SR 70-2.65, 2.88; Ross-SR 28-0.00(Pt.), (Pts. 1 to 4 incl.)-Maint. Fayette-USR 35-(15.22-17.33); Ross-USR 35-0.00, (Pts. 5 & 6)—L. & D., Proj. No. 303, Fayette, Highland and Ross Counties.

OHIO—**Pinckney P. Brewer & Sons Co.**, 7455 Dawson Rd., Cincinnati, Ohio, LB $111,905, (1 bidder), Type T-35 4.02 mi., SR 74-(1.46-1.72) (4.09-5.46). Village of Newtown, Proj. No. 304, Hamilton Co.

OHIO—**Price Constr. Co., Inc.**, Fair Rd., Norwalk, Ohio. LB $313,961, Type T-35 on B-19, 11.429 mi., USR 224-(0.00-6.82); SR 194-1.30; USR 224-30.27, (Pts. 1 to 3 incl.), Village of Willard, Proj., No. 305, Huron and Seneca Counties.

OHIO—**Clyde L. Moore, Inc.**, Route No. 1, Lowellville, O., CD $136,167, Type I-7, T-35 on B-70 and structures 0.257 mi., USR 224-(15.34) (15.93) (16.18). Proj. No. 309, Mahoning Co. CD 6/17.

▲ **William Passalaqua Builders, Inc.**, 17300 Miles Ave., Cleveland 28, O., CA $1,147,000 (5 bidders) ion and plasma jet facility, office and operations, CLEVELAND, O. National Aeronautics & Space Admin., Lewis Research Center, 21000 Brookpark Rd., Cleveland 35, O. Bids June 21. CD 6/6.

▲ **INDIANA**—State Hy. Dpt., State House Annex, Indianapolis, Bids opened 6/28.

Ind.—**Studebaker Constr. Co.**, R.R. 6, Logansport, Ind., LB $373,127, est. $473,551, (11 bidders), bit. base wid'n. and rein.-con. bit. resurf., Contr. RS-5026, Rush and Henry Counties; LB $161,911, est. $218,339, (2 bidders), bit. base wid'n. and resurf., Contr. RS-5028, Miami Co.; LB $200,271, est. $298,961, (7 bidders), bit. base wid'n. and resurf., Contr. RS-5030, Carroll Co.;

Ind.—**McMahan Constr. Co.**, Rochester, Ind., LB $141,009, est. $142,188, (1 bidder), bit. pavement with concrete base, aggr. base, Contr. RS-5021, Fountain Co.; LB $339,465, est. $350,413, (2 bidders), bit. base wid'n. and resurf., Contr. RS-5023, Laporte Co.;

Ind.—**R. B. Tyler Co.**, 1446 Levering St., Louisville, Ky., LB $378,021, est. $473,683, (4 bidders), bit. pavement with concrete base bit. resurf., Contr. RS-5025, Montgomery Co.; LB $382,880, est. $464,615, (4 bidders), concrete wid'n. and bit. resurf., Contr. RS-5029, Sullivan Co.;

Ind.—**Moellering Constr. Co.**, Engle Rd., Fort Wayne, Ind., LB $2,041,053, est. $2,466,020, (6 bidders), rein.-con. pavement, Contr. R-5013, Allen Co.;

Ind.—**The Hunt Paving Co.**, 3421 W. Kelly St., Indianapolis, Ind., LB $1,935,786, est. $2,402,405, (11 bidders), rein.-con. pavement, Contr. R-4843, Marion Co.;

Ind.—**Bituminous Materials Co.**, 3500 N. 33 St., Terre Haute, Ind., LB $1,297,870, est. $1,680,014, (9 bidders), bit. pavement, Contr. R-5019, Vigo Co.;

Ind.—**Hipskind Asphalt Co.**, 1717 Winter St., Fort Wayne, Ind., LB $190,162, est. $192,460, (2 bidders), bit. base wid'n. and resurf., Contr. RS-4963, Dekalb Co.;

Ind.—**Rieth-Riley Constr. Co.**, 2500 W. Fieldhouse Ave., Goshen, Ind., LB $185,676, est. $212,397, (1 bidder), rein.-con. pavement concrete wid'n. bit. resurf., Contr. RS-5020, Laporte Co.;

Ind.—**Gast Constr. Co.**, 2116 S. Columbia St., Warsaw, Ind., LB $267,032, est. $296,473, (1 bidder), Contr. RS-5022, Decatur and Ripley Counties;

Ind.—**Dyer Constr. Co.**, 1716 Sheffield Ave., Dyer, Ind., LB $226,209, est. $294,047, (3 bidders), rein.-con. pavement concrete wid'n. bit. resurf., Contr. RS-5024, Lake Co.;

Ind.—**Meshberger Bros. Stone Corp.**, P.O. Box 38, Linn Grove, Ind., LB $129,122, est. $153,676, (8 bidders), bit. base wid'n. and resurf., Contr. RS-5027, Jay Co.;

Ind.—**Muncie Paving, Inc.**, Middletown Park, Muncie, Ind., LB $109,168, est. $142,522, (3 bidders), bit. resurf., Contr. RS-5031, Madison and Delaware Counties;

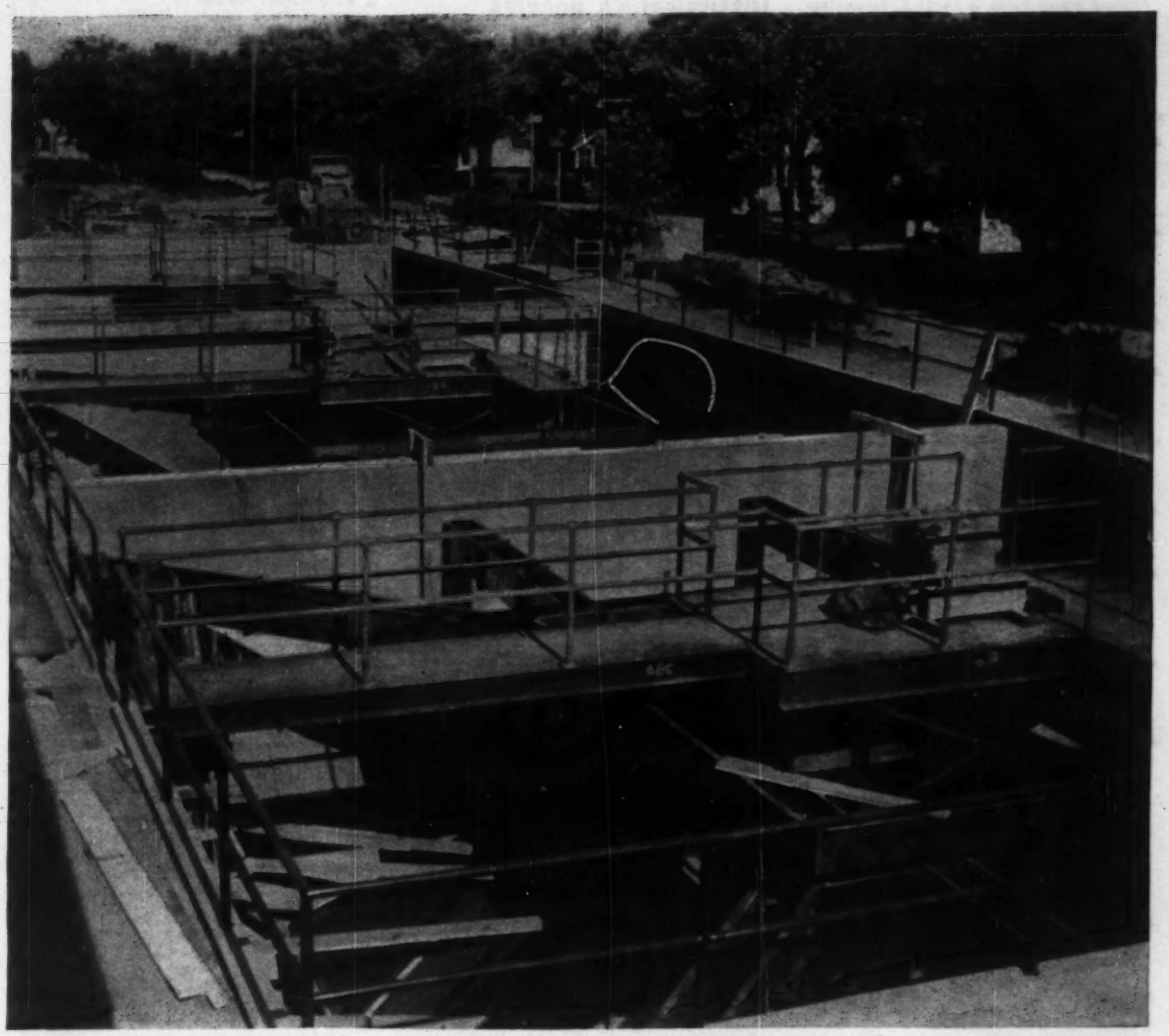
Ind.—**Ralph Rogers & Co.**, S. Adams St., P.O. Box 849, Bloomington, Ind., LB $375,467, est. $495,578, (5 bidders), bit. base wid'n. and resurf., Contr. RS-5032, Monroe and Brown Counties. CD 6/7.

▲ **McCarthy Constr. Co.**, 6th and Harriet Sts., Cincinnati, O., CA $1,665,095, Section 4 and part of Section 5, Mill Creek Auxiliary sewer CINCINNATI, O. City, City Hall, Cincinnati, O. Bids June 28. Awarded July 5. CD 7/1.

▲ **Robert Beedie & Son**, 4381 Creek Rd., Blue Ash., Cincinnati, O., CA $1,300,000 (5 bidders) paving, sewer-water lines, for 755 lots off Colerain Ave. CINCINNATI, O. Murphy Homes, Inc., 7945 Hamilton, St., Mt. Healthy, O. Bids June 30. CD 6/24. **Murphy Homes, Inc.**, 7945 Hamilton Ave., Mt. Healthy, O. Own forces $135,000 sewage treatment plant for 755 homes off Colerain Ave. (Cincinnati, O.) Bids June 30 rejected. CD 6/24.

▲ **Square & Marra Constr. Co.**, 5101 Praha Ave., Cleveland 27, O., CA $1,071,084, Part 1 Mill Creek branch relief sewer, Part III addnl. culvert under East Blvd., Mill Creek Branch relief sewer, intercepting sewer through Calvary Cemetery to Broadway, CLEVELAND, O. Dpt. P. Service, City Hall, Cleveland, O. Bids Apr. 21. CD 4/29 under LB.

▲ **J. M. Corbett Co.**, 2500 Corbett St., Chicago, Ill., LB $338,000 est. $301,900, No. 30-cs, bit. paving, 17,035 ft. curb and gutter, 7,285 ft. storm sewers, EVERGREEN PARK, ILL. Village, Village Hall, Evergreen Park, Ill. Bids June 2. CD 5/26.



PROTECT METAL FROM MOISTURE...LONGER

"Allied Chemical" T.O.F. Solution #114 is specially designed to protect the inside and outside of tanks and pipes used in the storage or transportation of potable water, air conditioning and humidifying systems piping, plus metal surfaces of cooling towers.

"Allied Chemical" CA Coating #150 provides protection for metal and concrete structures subjected to severe corrosive conditions where application of hot applied coal tar enamel is not practical.

Both materials comply with AWWA specifications.

There are 14 Allied Chemical cold applied products—coatings, mastic, wrapping and creosote—that will provide long-lasting protection for your outside equipment. Write us for additional information.

Though we've changed the name from Barrett to Allied Chemical Protective Coatings, you receive the same famous protection—proved and improved for three generations.

PLASTICS AND COAL CHEMICALS DIVISION
40 Rector Street, New York 6, N. Y.

Allied Chemical

American Asphalt Paving Co., 9701 S. Torrence Ave., Chicago, Ill., LB **$458,727** est. $350,000, No. 31-cs, bit. paving, 23,310 ft. curb and gutter, 11,985 ft. storm sewers (Evergreen Park, Ill.)
Chicago Paving & Constr. Co., 12701 S. Doty Ave., Chicago, Ill., LB **$322,794** est. $263,800, No. 32-cs, bit. paving, 16,945 ft. curb and gutter, 7,260 ft. storm sewers (Evergreen Park, Ill.)

BUILDINGS—LB & CA

▲ **Hunkin-Conkey Constr.**, 1740 E. 12th St., Cleveland 14, O., LB **$2,006,000**, est. $3,100,000 (3 bidders), 295 units HOUSING Proj. OH 3-17B, Wade Park Ave. between Ansel and Crawford Rds., Cleveland, O. Cleveland Metropolitan Housing Auth., 1325 W. 28 St., Cleveland, O. Bids June 28. CD 6/6.

▲ **Baker & Coombs of Ohio, Inc.**, 3035 W. Broad St., Columbus, O., LB **$1,447,700**, (5 bidders) MARRIED STUDENTS HOUSING, Ohio State University, Ohio 33-CH-87(D) COLUMBUS, O., Dpt. P. Wks., State Dept. Bldg., Columbus, 15, O. Bids June 30. CD 6/3.

▲ **Ohio Karr Corp.**, 923 E. Broad St., Columbus, O. Owner builds, **$1,000,000**, 60 ranch HOMES, Sherwood Forest Homes, COLUMBUS, O.

▲ **Ohio Homes, Inc.**, 10957 Reading Rd., Sharonville, O., Own Forces, **$2,780,000**, 180, 1 story, bsmnt., 29x48 ft. brick HOMES, streets off Rte. 74, NEWTON, O. Muller & Seuberling, 6847 Griesmer St., Cincinnati, O., engrs.

Fred W. Entenman Constr. Co., 3323 Secor Rd., Toledo, O., CA **$865,247**, JUNIOR HIGH SCHOOL, TOLEDO, O. Adams Twp. Bd. Educ., 1800 Krieger Dr., Toledo 7, O. Bids June 24. CD 75 under LB.

▲ **John R. Worthman, Inc.**, 215 W. Leith St., Fort Wayne, Ind. Owner builds. **$5,000,000**, 225 HOMES in 2 sections of Lake Shores addn., FORT WAYNE, IND.

▲ **W. E. O'Neil Constr. Co.**, 2751 N. Clybourn Ave., Chicago, Ill., CA **$2,000,000**, CORPORATE OFFICE, 22nd St. and S. Park Ave., CHICAGO, ILL. R. R. Donnelley & Sons, 350 E. Cermak Rd., Chicago 16, Ill. Albert Kahn & Assocs., 345 New Center Bldg., Detroit 2, Mich., archt. Bids May 5.

▲† **Shamrock Engineering Co.**, 865 S. Lake St., Gary, Ind., CA **$1,005,427**, SPECIAL WEAPONS SUPPORT FACILITIES, Savanna Ordnance Depot, ENG-11-032-60-117, SAVANNA, ILL. U. S. Eng., 1819 Pershing Rd., Chicago, Ill. Bids June 22. CD 6/28, under LB.

▲ **Henry Bros.**, 9112 S. Ashland Ave., Chicago, Ill., CA **$1,500,000**, CHURCH and SCHOOL addn., WINNETKA, ILL. Saints Faith, Hope and Charity Roman Catholic Church, 191 Linden St., Winnetka, Ill. Edward J. Schulte, 920 E. McMillan St., Cincinnati 6, O., archt. Bids June 6. Awarded June 29.

▲ **Mel White Builders**, 6910 N. Clark St., Chicago, Ill., CA **$1,000,000**, 70,300 sq. ft. WAREHOUSE addn., candy kitchen, commissary, 43rd St. and Pulaski Rd., CHICAGO, ILL. Hillmans Pure Food Stores, 28 W. Washington St., Chicago, Ill. Bids June 2. Awarded June 1. CD 6/21.

▲ **Shapland Constr. Co.**, 302 Buena Vista Ave., Champaign, Ill., CA **$1,589,700**, nineteen, 2 story, 126 unit ORCHARD DOWNS HOUSING PROJECT, URBANA, ILL. University of Illinois, Urbana, Ill. Bids May 19. Awarded June 14. CD 6/13, under LB.

Ragnar Benson, Inc., 4744 W. Rice St., Chicago, Ill., CA **$612,000**, 135x182 OFFICE and GARAGE, 3301-37 W. Lake St., CHICAGO, ILL. Illinois Bell Telephone Co., 212 W. Washington St., Chicago, Ill. Joseph Pfendt, owners archt. Awarded July 1.

Cunningham Bros., 359 E. Grand Ave., Beloit, Wis., LB **$757,183**, Alonzo Aldrich Junior High SCHOOL, BELOIT, WIS. Bd. Educ., Beloit, Wis. Bids June 23. Knodle & Baucom, 400 E. Grand Ave., Beloit, Wis., archts.

▲ **C. H. Peterson Constr. Co.**, 4020 Minnetonka Blvd., Minneapolis, Minn., CA **$1,974,000**, general contract, HOSPITAL ADDN., LA CROSSE, WIS. St. Francis Hospital, 709 S. 10 St., La Crosse, Wis. Bids May 25. Grand total $3,198,738. CD 6/7, under LB;
F. M. Branson & Co., 312 Pearl St., La Crosse, Wis., CA **$764,938**, heating, ventilation and air-conditioning for hospital (La Crosse, Wis.);
Papenfuss Electric Co., 1003 S. 8 St., La Crosse, Wis., CA **$459,800**, electrical work for hospital (La Crosse, Wis.).

▲ **Turner Constr. Co.**, 150 E. 42 St., New York, N. Y., CA Est. **$18,000,000**, 22 story BANK and OFFICE, parking garage, Downtown Marine Plaza Redevelopment Project, MILWAUKEE, WIS. Wisconsin Clybourn Urban Redevelopment Corp. and Marine National Exchange Bank, 625 N. Water St., Milwaukee 2, Wis. Robert E. Rasche, 601 W. Capitol Dr., Milwaukee, Wis., and Harrison & Abramovitz, 630 5 Ave., New York, N. Y., archts. CD 2/26/59.

▲ **J. A. Fredman Co.**, 735 S. Paddock St., Pontiac, Mich., CA total est. **$2,500,000**, brick, steel, stone HIGH SCHOOL, Hatchery Rd., Drayton Plains, WATERFORD, MICH. Waterford Twp. Bd. Educ., 3101 Walton Blvd., Pontiac, Mich. Geo. D. Mason Co., 409 Griswold St., Detroit 26, Mich., archts. Awarded June 22.

▲ **Arthur G. McKee & Co.**, 2300 Chester Ave., Cleveland 14, O., CA design and construct PELLETIZING UNIT PLANT expansion at Republic Mine, REPUBLIC, MICH. Cleveland-Cliffs Iron Co., Union Commerce Bldg., Cleveland 14, O.

MISSISSIPPI TO ROCKIES

HEAVY CONSTRUCTION—BA

Tex., Fort Worth—BA 7/18—City, City Hall, paving various streets, $280,000. Plans deposit $5. C. M. Thelin, Dir. P. Wks., Fort Worth, engr. CD 11/21/58.

† **Wyoming**—FAMILY HOUSING—BA 7/19—Base Procurement Office, Grand Forks Air Force Base, N. D., 27 unit family housing project, Sundance Air Force Station, IFB 23-605-60-66B. Former bids rejected. CD 2/3, under LB.

† **Tex., Sweetwater**—OPERATIONS—BA 7/21—U. S. Eng., Fort Worth Dist., 100 W. Vickery St., Fort Worth, 1,334 sq. ft. unit masonry operations bldg. addn., Sweetwater Air Force Base, ENG-41-443-60-42B. Plans deposit $6.50. CD 6/16.

BUILDINGS—BA

▲ **Tex., Houston**—MEDICAL RESEARCH CENTER—BA 7/19—Baylor University College of Medicine, 1200 M. D. Anderson Bldg., Jewish Medical Research Center, related bldgs., work, $4,000,000. Extended date. Joseph Krakower, 505 Avondale Ave., Houston, archt. Walter P. Moore, 2 Pinedale St., Houston; Bernard Johnson & Assocs., 4926 Travis St., Houston; Francis J. Niven, 2124 Welsh St.; Brown & Anderson, 116 Hawthorne St., both of Houston, engrs. CD 9/18.

▲ **Tex., Houston**—HIGH SCHOOLS—BA 7/21—Houston Ind. School Dist., 1300 Capitol Ave., High School, Scott and Reed Rds., $2,500,000; High School, Richmond, Hillcroft, Beverly Dr., $2,500,000. Plans deposit $50 each. Lloyd & Morgan, Nunn, Nunn & Ulbricht and Eugene Werlin & Assocs., 4605 Montrose Blvd., Houston, proj. archts. Milton McGinty, 2425 Ralph St., Houston, coordinate archts. CD 6/12.

Tex., Houston—AUDITORIUM—BA 7/21—Park Place Baptist Church, 4101 Broadway Ave., 2 story, 33,600 sq. ft. auditorium, $750,000. Ben F. Greenwood and E. Gene Hines, Assoc., 2265 W. Holcombe Blvd., archts. Walter P. Moore, 2 Pinedale St., and Bernard Johnson & Assoc., 4926 Travis St., consult. engrs. CD 2/15.

▲ **Tex., Houston**—CHURCH—BA 7/27—Second Baptist Church, 610 W. 24th St., church, $2,000,000. Plans deposit $50. Extended date. Wirtz, Calhoun, Tungate & Jackson, 2506 Richton St., archts. CD 6/27.

Minn., Pipestone—SCHOOLS—BA 8/3—Bd. Educ. Independent Consolidated School Dist. No. 583, Pipestone and Murray Counties, elementary school and high school addn. $775,000. Plans deposit $35. Matson & Wegleitner, 3701 Wayzata Blvd., Minneapolis, Minn., archts. CD 3/11.

Ark., Fort Smith—OFFICE—BA 8/4—First Federal Savings & Loan Assn., 504 Garrison St., 6 story bsmnt. steel frame, glass curtain wall marble and ceramic tile, office, E. Chester Nelson & Assoc., Merchants National Bank Bldg., Fort Smith, archt.

HEAVY CONSTRUCTION—LB & CA

▲ **The Curran Co.**, Eklund Bldg., Great Falls, Mont., CA, 190 mi. oil pipe line between Glendive, Mont. and Minot, N. D., MONTANA-NORTH DAKOTA, Cenex Pipe Line Co., c/o The Farmers Union Central Exchange, Inc., 1185 N. Concord St., South St. Paul, Minn. Total est. **$5,000,000.**
The Wilson Co., 25 S. 2 St., Kansas City, Mo., CA, terminal in Minot, S. D., and pumping station in Glendive, Mont. (Montana-North Dakota).

▲ **COLORADO**—State Hy. Dpt., 4201 E. Arkansas St., Denver, Bids opened July 1,
C. H. Loudermilk Constr. Co., 1950 West Dartmouth St., Denver, Colo., LB **$1,297,008** (8 bidders) grading structures, plant mixed asph. surf. Rabbit Ears Pass near Steam Boat Springs, Colorado Proj. No. F 005-2 (18) Routt Co., CD 6/22.

▲ **Gerald Phipps, Inc.**, 1530 West 13 Ave., Denver, Colo., CA **$1,000,000** STADIUM addn. DENVER, COLO., The Denver Bears, W. 20 and Decatur Sts., Denver, Colo., CD 12/1.

▲† **Wilkins Co. Inc.**, Box 286, Boulder, Colo., LB **$1,514,000** (2 bidders) 2 story, bsmnt. 56,000 sq.ft. air traffic control center, main bldg. LONGMONT, COLO., Federal Aviation Agency, 1711 New York Ave., N. W., Wash., D. C., Bids June 24, CD 4/22.

▲† **Wilkins Co. Inc.**, P. O. Box 286, Boulder, Colo., CA **$1,514,945**, 2 story, bsmnt. 56,000 sq. ft. air traffic control center main bldg. LONGMONT, COLO. Federal Aviation Agency, 1711 New York Ave., N.W., Wash., D. C., Bids June 24, Awarded June 30. CD 7/6, under LB.

▲ **Texas Gulf Constr. Co.**, P.O. Box 2536, Houston, Tex., CA **$1,656,685**, reconstr. piers 16 and 18, GALVESTON, TEX. Galveston Wharves, Bd. Trustees, 802 25th St., Galveston, Tex. Bids June 9. CD 6/22, under LB.

▲ **ARKANSAS**—State Hy. Comn., State Hy. Bldg., Little Rock,
McGeorge Contracting Co., 104 Nebraska St., Pine Bluff, Ark., **Forsgren Brothers** 3023 N 23 St., Fort Smith, Ark., and **E. E. Barber Constr. Co.**, 810 Wheeler St., Fort Smith, Ark., CA **$3,573,146** 1.14 mi. North Terminal Interchange incld. 5 bridges and 3 bridge length culverts, North Little Rock, Pulaski Co., Bids May 25, Awarded (Correction contractors) CD 6/2 under LB.

▲ **Montin-Harbert Pipe Line Corp.**, First National Bldgs., Oklahoma City 2, Okla., CA **$8,000,000**, 160 mi. 12 in. natural gas pipe line from Oklahoma City to Harrah and Muskogee to the Oklahoma Gas & Electric Co. plant Oklahoma City, Oklahoma Co. OKLAHOMA Mustang Fuel Corp., 2901 Classen Blvd., Oklahoma City 6, Okla. Pipe Line Technologists, Esperson Bldg., Houston, engrs. Awarded June 28.

▲ **OKLAHOMA**—State Hy. Dpt., Capitol 5, Oklahoma City,
Okla.—**Cimarron Constr. Co.**, Edmond, Okla., CA **$589,027**, grading, draining 5.225 mi. I 40, Midwest City, Oklahoma Co.
Okla.—**Peter Kiewit & Sons**, SE Station, Wichita, Kan., CA **$778,410**, stab. aggreg. base, b. conc. surf. 6.009 mi. I 40, Caddo Co. Bids June 24. CD 6/29, under LB.

BUILDINGS—LB & CA

▲ **G. I. Johnson & Son Co.**, 849 West 79 St., Minneapolis, Minn., CA **$1,750,000**, CLASSROOM-AUDITORIUM COMMONS BLDG. and two DORMITORIES, Hy. 55, ½ mi. from Hy. 100, GOLDEN VALLEY (P. O. MINNEAPOLIS), MINN. Lutheran Bible Institute of Minneapolis, 1619 Portland Ave., Minneapolis, Minn. Hammel & Green, 1932½ University Ave., St. Paul, Minn., archts. R. D. Thomas & Assocs., 1200 Metropolitan Bldg., Minneapolis, Minn., engrs. CD 10/2/59, under LB.

▲ **J. E. Krieg & Sons, Inc.**, 2014 Main St., Fargo, N. D., LB **$1,379,000**, (8 bidders), SCIENCE and INDUSTRIAL ARTS BLDG. Moorhead State College, MOORHEAD, MINN. State Dpt. of Admin., Procurement Div., 19 State Capitol, St. Paul, Minn. Bids June 30. CD 6/3.

▲ **A. E. Benicke**, Rochester, Minn., CA **$1,049,600**, HOSPITAL addn. to Nurses Home, WABASHA, MINN. St. Elizabeth Hospital, Wabasha, Minn. Bids June 1. CD 6/20 under LB.

▲ **C. Rallo Contg. Co., Inc.**, 5000 Kemper Ave., St. Louis 39, Mo., CA **$12,000,000**, 12 story HOSPITAL, CENTRAL TOWER, 11 story NURSES' HOME and SCHOOL, CONVENT, CHAPEL, GYMNASIUM, POWER PLANT and LAUNDRY, Ballas and Conway Rds., ST. LOUIS COUNTY, MO. Sisters of Mercy, St. John's Hospital, 307 S. Euclid Ave., St. Louis 10, Mo. Bids June 20. Awarded June 27. CD 6/28 under LB.

▲ **C. Rallo Contg. Co., Inc.**, 5000 Kemper Ave., St. Louis 39, Mo., CA **$1,140,000**, 2 story, 44,000 sq. ft. WOHL HEALTH CENTER, Grand Blvd. and Hickory St., ST. LOUIS, MO. St. Louis University, 221 N. Grand Blvd., St. Louis 3, Mo. Bids June 21. Awarded June 30. CD 6/29 under LB.

▲ **J. S. Alberici Constr. Co., Inc.**, 1550 Irving Ave., St. Louis 33, Mo., CA **$1,900,000**, 3 story OFFICE addn., alterations, Beaumont and Olive Sts., ST. LOUIS, MO., Southwestern Bell Telephone Co., 1010 Pine St., St. Louis 1, Mo. Bids June 14. Awarded June 28. CD 6/22 under LB.

▲ **Sharp Bros. Contrg Co.**, 1014 E. 19 St., Kansas City, Mo., CA **$1,629,453**, est. over $500,000, 3 story, bsmnt. ADMINISTRATION BLDG., KITCHEN, CAFETERIA and CHAPEL, SPRINGFIELD, MO. Central Assembly of God Church, Springfield, Mo. Mids June 14. CD 6/22 under LB.

▲ **Harmon Constr. Co.**, P. O. Box 1414, Oklahoma City, Okla., CA **$1,959,586**, HOSPITAL, NORTH LITTLE ROCK, ARK., City, City Hall, North Little Rock, Ark. Bids June 20. Awarded June 30. CD 6/30, under LB.

▲ **Continental Oil Co., Ponca City, Okla.** Owner builds. **$1,900,000**, 3 story, 40,000 sq. ft. CHEMICAL RESEARCH LABORATORY, PONCA CITY, OKLA.

▲ **Oak Dale Homes, Inc.**, 916 W. 10 St., Amarillo, Tex., **$436,000**, 36 DWELLINGS; **$431,625**, 38 DWELLINGS; **$438,100**, 40 DWELLINGS, Oakdale St. at Crane Ave. and 29 St., AMARILLO, TEX. Grand total $1,305,725. CD 6/10.

▲ **Robert E. McKee**, General Contractor Inc., P. O. Box 562, El Paso, Tex., LB **$1,217,000**, est. $750,000-$1,350,000 (5 bidders) CLASSROOMS-OFFICE, Texas Western College, EL PASO, TEX. Texas State University, Austin, Tex. Bids June 21. CD 10/26.

▲ **Frank L. LeBus, Sr.**, LeBus Shopping Center, Longview, Tex. Owner builds. **$1,000,000**, SHOPPING CENTER; **$60,000**, site area grading, filling, leveling; **$91,000**, hard paved area and Auto Center; off Hwy. 80, GREGGTON, TEX. Grand Total $1,151,000. Kelly & DeTeau, First National Bank Bldg., Longview, Tex., archts.-engrs. CD 6/29.

▲ **Cook Constr. Co., Inc.**, 2317 Bissonnet St., Houston, Tex. Owner builds **$1,035,000**, 106 unit APARTMENT, paved parking areas, HOUSTON, TEX. CD 7/7.

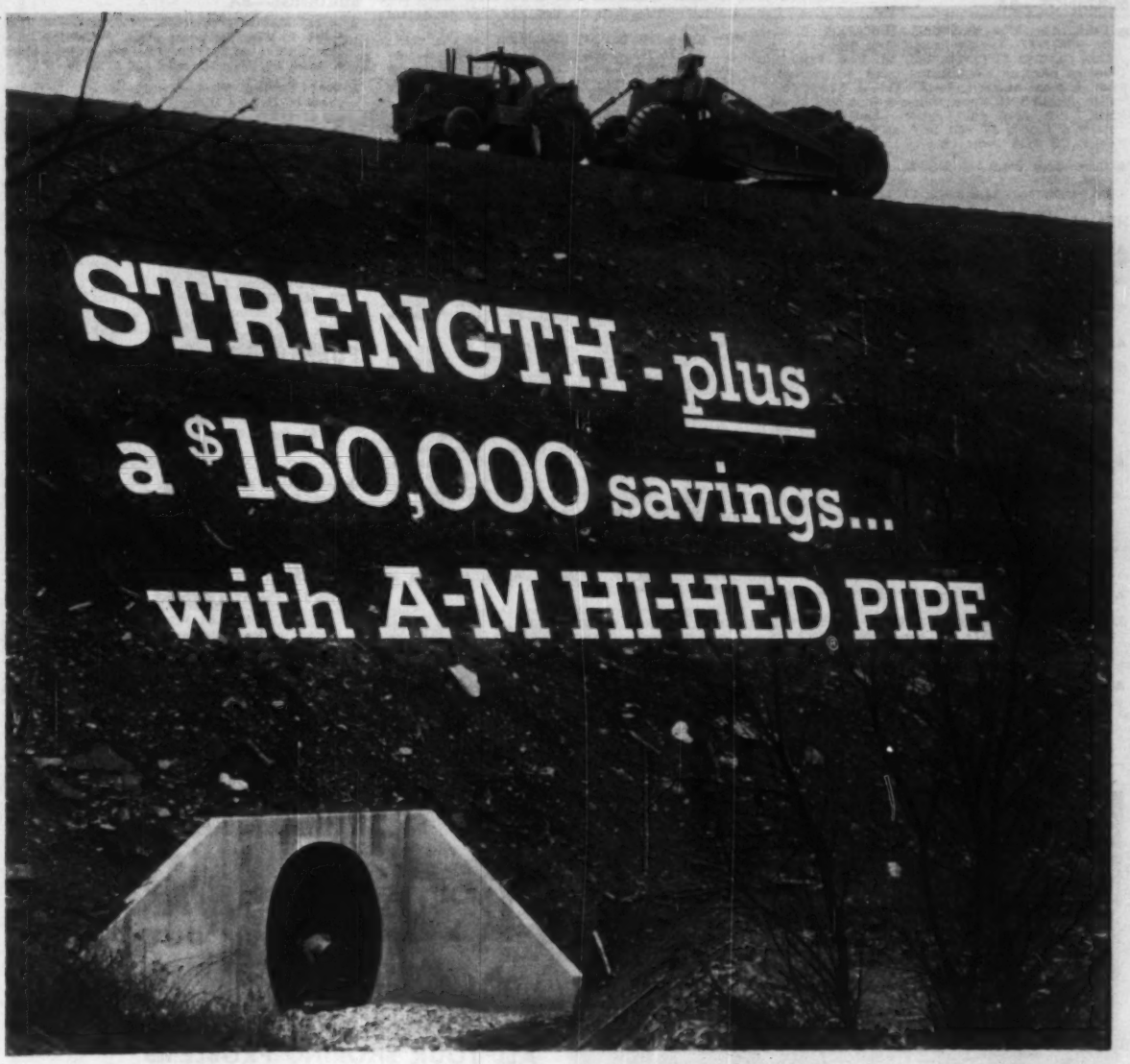
▲ **Hallmark Homes**, 3689 Del Monte St., Houston, Tex. Owner builds **$1,287,500**, 118 DWELLINGS, Channelview, Shadowglen Subdivision HOUSTON, TEX. CD 4/12.

▲ **Harris County Development Co.**, 705 Holmes Rd., Owner builds **$1,302,125**, 119 DWELLINGS, HOUSTON, TEX. CD 4/28.

▲ **H. G. Laughlin Co.**, 3130 Turner Dr., Houston, Tex. CA **$1,199,406**, SHOPPING CENTER, area and parking center pavement, site earthwork, HOUSTON, TEX. Bayou Properties Co., 3000 Hicks St., Houston, Tex. CD 6/27.

▲ **O. R. Winter**, 3312 Norfolk St., Houston, Tex. Owner builds, **$1,300,000**, APARTMENT, HOUSTON, TEX. Joseph B. Reynolds, 2480 Times St., Houston, Tex., archt.

▲ **A. P. Roffino Constr. Co.**, 10915 Garland Rd., Dallas, Tex., CA **$1,274,890**, 93 DWELLINGS, East Big Town, MESQUITE, TEX. The F.D.R. Corp., and A. P. Roffino Constr. Co., 10915 Garland Rd., Dallas, Tex. CD 6/20.



STRENGTH was the first requirement for a 4,000 foot drainage structure under the new east-west runway at Greater Pittsburgh Airport. Precast concrete Hi-Hed pipe provided this essential strength (50% stronger on the average than equivalent size round pipe), plus a big bonus in the form of an estimated saving of $150,000—approximately 18% savings over competitive material.

Versatile A-M Hi-Hed Pipe is designed for minimum vertical load and maximum lateral support . . . saves trench width in congested areas . . . is readily available in sizes up to 144" round pipe equivalent from plants strategically located throughout the nation. Write today for illustrated Hi-Hed brochure.

A-M

AMERICAN-MARIETTA COMPANY
CONCRETE PRODUCTS DIVISION
GENERAL OFFICES:
AMERICAN-MARIETTA BUILDING
101 EAST ONTARIO STREET, CHICAGO 11, ILLINOIS, PHONE: WHITEHALL 4-5600

FAR WEST

BUILDINGS—BA

▲ **Calif., Los Altos**—BUSINESS EDUCATION BLDG. etc.—BA 7/27—Foothill Junior College Dist. of Santa Clara Co., 150 El Camino Real, Mt. View, Proj. II, business education bldg., student center, library, football field and bleachers, Foothill College. $2,500,000. Plans deposit $50. Kump, Masten & Hurd, 325 Lytton Ave., Palo Alto, Calif., archts. Earl & Wright, Huber & Knapik, 57 Post St., San Francisco, Calif., engrs. CD 4/19 under LB.

▲ **Calif., Long Beach**—MUNICIPAL AUDITORIUM, etc. —BA 8/17—City, City Hall, auditorium, convention and exhibit hall. $4,940,000. CD 6/23/53.

HEAVY CONSTRUCTION—LB & CA

▲ **IDAHO**—State Hy. Dpt., Boise,
Morrison-Knudsen Co., Inc., 319 Broadway Ave., Boise, Idaho, CA **$1,215,903,** roadway, drainage structures, plant mix bit. surf. 9.315 mi. US 20 and 26, Canyon Co. Bids June 21. Awarded June 29. CD 6/28, under LB.

▲ **CALIFORNIA**—State Div. Hys., 120 S. Spring St., Los Angeles, bids opened 6/30,
Griffith Co., 1060 S. Broadway, Los Anegeles 15, Calif., LB **$9,154,897,** (3 bidders), 0.7 mi. viaduct to carry eight lane Santa Monica Freeway between Harbor Freeway and Main St. in Los Angeles incl. surf. various ramps and connector roads. VII-L.A. 173, 165, La. Los Angeles Co. CD 5/26.

▲† **Guy F. Atkinson Co.,** P.O. Box 593, 10 W. Orange Ave., South Francisco, Calif., CA **$1,047,867** Sched. 1, Trinity Power Plant, Central Valley Proj. Spec. DC 5320, CALIFORNIA. Bureau Reclamation, Dpt. Interior, Lewiston, Calif. Bids June 8. Awarded June 28. CD 6/13, under LB;
E-W Constr. Co., Box 425, Rte. 2, Creswell, Ore., CA **$2,712,510** Sched. 2, Clear Creel Power Plant, Central Valley Proj. Spec. DC 5320 (California).

▲ **CALIFORNIA**—State Div. Hys., 1120 N St., Sacramento,
J. W. Briggs and J. N. Conley, 1825 California St., Redding, Calif., CA **$7,423,104,** heavy grading 7 mi. US 40 freeway rte., III-Nev-37,B,C, Nevada Co. Bids June 22. CD 6/24, under LB.

▲ **CALIFORNIA**—State Div. Hys., 120 S. Spring St., Los Angeles,
J. E. Haddock, Ltd., 3538 E. Foothill Blvd., Pasadena, Calif., CA **$1,694,007,** wid'n. San Bernardino Freeway between ½ mi. east, Eastern Ave., Monterey Park and Rosemead Blvd., Rosemead, 5.4 mi., wid'n., altering 17 bridges, VII-L.A.-26, Mont., LA, Alh, E, Rsmd., Los Angeles Co. Bids June 23. CD 6/29, under LB.

▲ **CALIFORNIA**—State Div. Hys., 120 S. Spring St., Los Angeles,
Peter Kiewit Sons Co., 345 Kieways Ave., Arcadia, Calif., CA **$7,676,933,** grading, paving 2.9 mi. 8 lane freeway, San Diego Freeway, 17 major structures between 0.3 mi. south, etc., VII-L.A.-158, 165-C,A,LA., Los Angeles Co. Bids June 23. CD 6/29, under LB.

▲ **L & H Constr. Co.,** 1332 El Camino Real, Belmont, Calif., CA **$5,000,000,** 300 1 story wood frame HOMES, Grandview Terrace Subdivision, HALF MOON BAY, CALIF. Willark Corp., P. O. Box 711, Half Moon Bay, Calif. L. C. Macabee, 156 University Ave., Palo Alto, Calif., engr.

▲† **James E. Roberts Co.,** 980 41st St., Oakland, Calif., CA **$1,158,000** rehabilitation and conversion to Public Quarters Wherry Housing, Naval Post Graduate School, NBy-22892, Spec. No. 22892/59, MONTEREY, CALIF. Dist. P. Wks. Office, 12th Naval Dist., San Bruno, Calif. Bids Apr. 20. CD 4/5.

▲ **Oddstad Homes,** 1718 Broadway, Redwood City, Calif., Owner Builds, **$3,000,000,** 200 HOMES, Parkridge Subdivision, near here OAKLAND, CALIF. Salvador Iniguez c/o owner, archt.

▲ **Fred J. Early, Jr. Co., Inc.,** and **Stolte, Inc.,** 369 Pine St., San Francisco, Calif., LB **$6,335,000** (3 bidders) sewage treatment plant and sewer trunk lines, SACRAMENTO, CALIF. Southeast County Sewer Assessment Dist., Co. P. Wks. Dpt., 827 7 St., Sacramento, Calif.

▲† **S. S. Mullen, Inc.,** 220 River St., Seattle, Wash., CA **$1,228,701,** passenger tramways, Cape Lisburne Air Force Station, Tin City Air Force Station Inv. 60-64, ALASKA. U. S. Eng., 1519 S. Alaskan Way, Seattle 4, Wash. Bids June 22. CD 6/29, under LB.

BUILDINGS—LB & CA

▲ **Lease Co., Inc.,** 1501-35 St., Seattle, Wash., CA **$3,402,000** est. $3,000,000 HIGH SCHOOL, ANCHORAGE, ALASKA. Anchorage Independent School Dist., 1602 Hillcrest Dr., Anchorage, Alaska. Bids June 28 CD 6/30 under LB.

▲ **Herbert Goldsworthy,** 409 Santa Monica Blvd., Santa Monica, Calif., LB **$1,336,000** est. $1,250,000 (7 bidders) Vanguard HIGH SCHOOL addn., COMPTON, CALIF. Compton High School Dist., 417 W. Alondra Blvd., Compton, Calif. Bids July 1 CD 6/16.

▲ **Baugh Constr. Co.,** 922 Poplar Place, Seattle, Wash., CA **$2,152,790,** 4 story, 55 x 193 ft. and 50 x 111 ft. rein.-con. HOSPITAL ADDNS., SEATTLE, WASH., Virginia Mason Hospital Ass'n., 1111 Terry Ave., Seattle, Wash., Bids June 9. CD 6/14 under LB.

CANADA

BUILDINGS—BA

▲ **N. B., Moncton**—TECHNICAL INSTITUTE—BA 7/12 —Dpt. P. Wks., Parliament Bldgs., Fredericton, technical institute, $1,500,000. Plans deposit $50. Moore & Cowen, 681 Main St., engrs. CD 6/12/59.

▲ **Que., Thedford Mines**—SCHOOL—BA 7/18—School Comn. of Thedford Mines, 2 and 3 story, 70x120 ft. and 60x325 ft. L-shaped, brick, stone, rein.-con. superstructure Secondary School, $1,000,000. Extended date. J. Berchmans Gagnon, 97 Notre Dame St. S., archt. Cote, Lemieux, Carignan & Bourque, 144 Vimy St. N., Sherbrooke, engrs. CD 6/23.

BUILDINGS—LB & CA

▲ **Gage Constr. Co., Ltd.** and **Wycliffe Homes, Ltd.,** 567 Sheppard Ave. E., Toronto, Ont., Owner Builds, **$2,-500,000,** SHOPPING CENTRE, Main St., HAMILTON, ONT. CD 6/29.

Con-Eng Contractors Ltd., 267 Dundas St., London, Ont., CA **$623,500,** (3 bidders), HOME FOR AGED extension, Mt. Pleasant Rd., BRANTFORD, ONT. City, City Hall, Brantford, Ont. Bids Apr. 11. CD 4/8.

PUERTO RICO

BUILDINGS—LB & CA

▲ **Brown & Root, Inc.,** Box 3, Houston, Tex., U.S.A., CA **$30,000,000,** design and construct POLYETHYLENE PLANT addn., 25 acre area, Penuelas, GUAYNILLA, PUERTO RICO. Union Carbide Corp., 30 E. 42 St., New York, N. Y., U.S.A. CD 6/27/56.

▲ **Constructora de Puerto Rico, Inc.,** Soler Bldg., Santurce, Puerto Rico, CA Est. **$18,000,000,** 3,000 private HOMES, Finca Angola, PONCE, PUERTO RICO. O.P.I.S., Box 11036, Santurce, Puerto Rico. A. C. Kayanan, Box 11036, Santurce, Puerto Rico, archt.

FOREIGN

HEAVY CONSTRUCTION—BA

▲ **Iraq**—NATURAL GAS PIPELINE, etc.—BA 8/31—Republic of Iraq, Ministry of Industry, Directorate of Legal Affairs, Baghdad, buried natural gas pipeline from Basrah Petroleum Company's Plant, Rumaila to Basra Power Station, Nijibiyah and proposed fertilizer project, Abul Flus to incl. dehydration plant, odourising plant and metering stations. Payment of the sum of ID.25/ for each set of documents. Messrs. Embank and Partners Ltd., 10/11 Grosvenor Pl., London, S.W. 1, England, consult. engrs. Adv.—ENR 7/14.

WACO

HI-LOAD
HEAVY DUTY
SHORING

THE ANSWER TO
ALL YOUR SHORING PROBLEMS

★ Shores safely to any required height.
★ Carries 10,000 lbs. per leg, 20,000 lbs. per panel.
★ Completely versatile.
★ Has load bearing top ledger.
★ Easy erection and storage.
★ Experienced factory engineering service.

Check the Yellow Pages for your nearest Waco Distributor or . . .

WRITE TODAY
for the complete Waco
Hi-Load Story.

WACO Manufacturing Company
DIVISION OF WACO-PORTER CORPORATION
5251 West 130th Street • Cleveland 30, Ohio

Licensees: Armson Iron Works, Windsor, Ontario
Tubular Structures Corp. of America, Los Angeles, California

Construction Scoreboard

This Week . . .

AMOUNT OF CONTRACTS LET

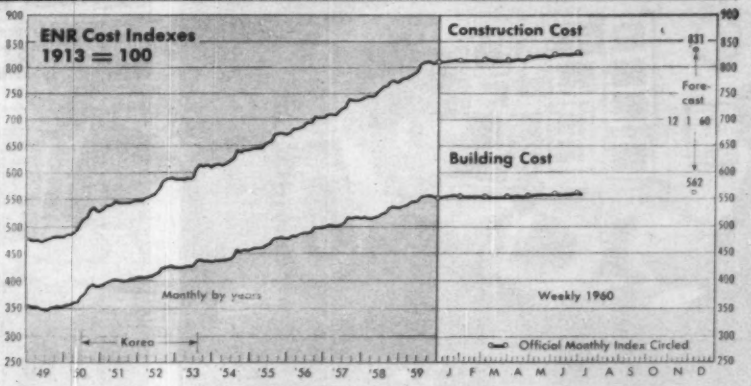
Contracts Awarded In 50 States By Type	This Week millions	Cum. 28 wks 1960	Chge '59-'60 %
All Heavy Construction	$601.1	$12,481.8	+ 9
By Ownership			
PRIVATE	304.8	6,691.7	+19
PUBLIC	296.3	5,790.1	− 1
State & Municipal	228.4	4,341.5	+ 6
Federal	67.9	1,448.6	−19
By Type of Work			
PUBLIC			
Waterworks	15.9	263.6	+ 4
Sewerage	15.1	323.2	−11
Briges*	23.4	438.9	+32
Highways	84.0	1,772.4	+ 3
Earthworks, Dams & Waterways	13.6	465.0	+ 1
Buildings:			
Excl. Housing	76.4	1,337.3	− 9
Housing	20.5	341.1	−25
Unclassified	47.3	849.9	+ 2
PRIVATE			
Buildings:			
Mass Housing	96.3	3,350.2	+30
Commercial	114.9	1,343.7	+10
Industrial	70.4	1,457.8	− 5
Unclassified	23.3	538.7	+93

*Includes Private bridges

NOTE: Minimum size projects included are: Waterworks and waterways, $53,000; other public works, $88,000; industrial buildings, $110,000; other buildings, $400,000.

NEW CONSTRUCTION CAPITAL

	Week of July 7 millions	Cum. 27 wks 1960	Chge '59-'60 %
Corporate Securities	$ 74.0	$1,604.3	−25
State and Municipal:			
All Except Housing	66.2	3,605.7	+ 3
Housing	....	182.2	+272
Federal Loans	1.6	78.9	− 3
Federal Aid	....	2,717.8	....
Total Nonfederal	$141.8	$8,189.0	+41
Federal Appropriations:			
Projects in U.S.	....	191.6	+400
Outside U.S.	....	10.8	....
Total New Capital	$141.8	$8,391.3	+44


ENR Cost Indexes 1913 = 100
Construction Cost
831
Fore-cast
12 1 60
Building Cost
562
Monthly by years
Weekly 1960
Korea
Official Monthly Index Circled
49 50 51 52 53 54 55 56 57 58 59 J F M A M J J A S O N D

ENR INDEXES (1913=100), 20-cities' average	Week of July 7 1960	% Change from June 9 1960	% Change from July 9 1959
Construction Cost	828.67	+0.36	+2.3
Building Cost	560.81	+0.19	+1.5

To convert above indexes to 1926 = 100: Divide Construction Cost by 2.080; Building Cost by 1.850.
1949 = 100: Divide Construction Cost by 4.770; Building Cost by 3.518.

Latest Month . . .

CONTRACTS AWARDED

	1960 June (millions)	1960 6-Mos. (millions)	Percent Change from 1959 June	Percent Change from 1959 6-Mos.
Total U. S. (ENR reported)	$2,884.7	$11,362.0	+52	+ 9
Private	1,606.7	6,136.0	+76	+21
Public	1,278.0	5,226.0	+30	− 3
State and Municipal	896.0	3,933.5	+27	+ 5
Federal	382.0	1,292.5	+38	−20
ENR Volume Index, 1913 = 100	785	591	+28	+ 4

NEW CONSTRUCTION CAPITAL

Total U. S.	1,485.1	8,249.5	−58	+51
State and Municipal Bond Sales	849.0	3,539.5	−42	+12
Corporate Security Sales	429.2	1,530.4	+169	−28
Federal Loans, Aid (nonfederal work)	10.8	2,795.1	−99.6	+3,000
Federal Appropriations (federal work)	27.5	202.4	−84	+428

* Includes funds for outside U. S.

MATERIALS SHIPMENTS

	Mar. Apr. May	1960 (M)* (A) (M)	Cum. (No. of Mos.)	Percent Change from Year Ago Mo.	Cum.
Portland Cement, Bur Mines, thous bbls		30,185(M)	101,549(5)	+10	−11
Concrete Paving Awards, PCA, thous sq yd		9,963(M)	39,566(5)	+19	− 5
Fabricated Structural Steel, thous tons		285(M)	1,298(5)	−0.3	+ 1
Bookings, AISC, thous tons		270(M)	1,468(5)	−22	+11
Reinforcing Bars, Net, AISI, thous tons		192(M)	827(5)	+19	−21
Lumber, NLMA, mil fbm		3,187(M)	14,633(5)	+ 4	− 2
Orders, mil fbm		3,038(M)	14,351(5)	+ 2	− 5
Production, mil fbm		3,197(M)	14,946(5)	+ 5	+ 3
Clay Products, Bureau of Census					
Brick, Unglazed, Common, Face, mil bri		389.6(M)*	1,111.4(3)	+ 5	−18
Vitrified Clay Sewer Pipe, thous tons		116.7(M)*	329.6(3)	+10	− 8
Structural Tile, Unglazed, thous tons		35.5(M)*	102.9(3)	+ 5	−10
Asphalt Products, Bureau of Census					
Asphalt Roofing, thous sales sqs		4,009.9(A)	13,709.9(4)	+ 7	+41
Asphalt Siding, thous sales sqs		46.7(A)	217.9(4)	−16	−23
Aluminum, Wrought, Net, Bur Census					
Sheet and Plate (non-heat treatable), mil lbs		99.9(A)	404.8(4)	− 7	+ 3
Wire and Cable, mil lbs		24.0(A)	93.8(4)	− 3	− 2
Extruded Shapes (soft alloys), mil lbs		66.5(A)	266.7(4)	− 3	+ 2

EMPLOYMENT AND FAILURES

Contract Const Employment, BLS, thous		2,597(A)	2,451(4)**	+14	+ 1
Contractor Failures, Dun & Bradstreet					
Number		214(M)	1,063(5)	− 3	+21
Liabilities, thous		$10,877(M)	$66,728(5)	−20	+40

** Average per month

CHASE MANHATTAN'S BID gets to Washington, D. C., Armory Board just ahead of noon deadline.

IT'S OPENED by counsel Harry Russell and passed to chairman Floyd B. Akers.

TREASURY OFFICIALS REVIEW the bids. Assistant Secretary Laurence B. Robbins signed the sale agreement.

MR. AKERS WAITS for Treasury approval, a signal to award $14-million building contract.

Bankers Also Bid for Work—Then

District of Columbia officials pulled off a minor financial coup last week by showing federal bureaucrats how to float a long-term bond issue successfully.

The 19½-year bonds—$19.8 million worth—were put out for bid by the District's Armory Board to finance construction of the Capital City's handsome new municipal stadium, planned for use in 1961 (ENR June 30, p. 21).

Five big banks heading up investment syndicates sent their representatives to the D. C. armory building to bid for the issue (see pictures). The bonds, backed by the federal government, carry the best credit rating.

Chase Manhattan Bank of New York, acting as a principal for a combine of 56 banks and financial houses, walked off with the issue by offering a $31,678.02 cash premium and 4.2% interest rate.

The Treasury, which has had its troubles in trying to float anything longer than a five-year security issue in recent years, lost no time in approving the sale. Assistant Treasury Secretary Laurence B. Robbins, acting for Treasury Secretary Robert B. Anderson, put his necessary signature to the agreement less than an hour after the bidding was ended (picture).

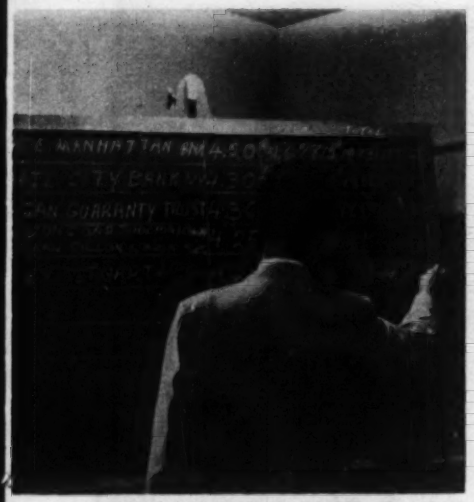
The bonds were the first issued by a District agency according to Treasury officials, and could be a forerunner of other construction issues by the city.

Treasury officials expressed their delight and surprise at the interest shown in the issue by the financial community. Assistant Fiscal Secretary William T. Heffelfinger said the issue would cost less than if the District of Columbia had borrowed the money from the Treasury, the traditional method for financing city projects.

There was some speculation in New York financial circles before the bonds were offered that they would be classified as tax-exempt municipals instead of federal bonds. But D.C. board officials say they are not exempt from federal taxation and Chase Manhattan says it purchased them with that understanding.

The Armory Board moved quickly once the agreement had been ratified. Later that afternoon, Armory Board president Lloyd B. Akers awarded a $14,182,187.50 construction contract to McCloskey and Co., Philadelphia builders. Ground-breaking ceremonies were held the next day and actual construction got under way this week.

The new structure is intended as a replacement for the cavernous and gloomy old 27,000-seat Griffith Stadium, home of the Washington Sena-



BIDS GO UP on a blackboard, then they're telephoned to Treasury Department.

"IT'S OURS," says Chase agent John MacKie, as he reports in with the good news.

FHA Lax on Capehart, GAO Says

The General Accounting Office last week called on Congress to shake up the management of Capehart military housing construction.

Principal criticism: The Federal Housing Administration has frittered away its authority over the program by ceding most of its power to the Defense Department.

GAO accused FHA of shedding responsibility in the supervision of the construction end of the program.

"FHA uses military criteria which do not, in our opinion, provide for reasonable evaluation as to the adequacy of existing available housing."

In addition "FHA has delegated to the military agencies the performance of certain of its responsibilities in relation to estimates of replacement costs," GAO says. "For matters relating to design and construction standards, FHA, instead of prescribing standards and conditions . . . has taken the position that it will act in advisory capacity only."

At least partly as a result of this, GAO indicated, the government incurred unnecessarily high interest costs and paid excessive amounts to some contractors because the "military services did not comply with the bid terms relating to wage adjustments." In addition, unreliable estimates were made of replacement costs because of deficient cost-estimating procedures and practices, according to the report.

GAO leveled its accusations in a report issued last week covering FHA's part in the Capehart program. A second report spelling out the Defense Department's activities and assumption of FHA authority will be given to Congress later.

GAO charged the military takeover of FHA's power went against the intent of Congress and called for action by the lawmakers to redefine strictly the housing agency's authority.

"Our review . . . disclosed that in some important respects the operating procedures and practices relating to those activities that were performed by FHA have been deficient," the report states, "with the result that essential management controls needed to safeguard the government's financial interests have not been maintained."

As one example, GAO accused FHA of laxity in reviewing wage adjustments made to assure that wages paid on federal projects do not fall below those prevailing in local communities.

In some instances, the report says, FHA accepted amounts negotiated by the military department, included improper costs in determining wage adjustments and was unable to support wage increases granted.

As a result, according to GAO, some cases resulted in excessive payments to contractors.

GAO also estimates that the government will be stuck for about $4 million in higher interest costs than necessary on current mortgages because payments on the principal were not begun "within a reasonable period after completion of construction and final endorsement of the mortgage note."

Sweat

tors baseball team and the Redskins pro football team.

Redskins' owner George Marshall already has signed for the 1961 season in the new municipal stadium. But the ball club's owner Calvin Griffith, Jr., who has been eying National League branch franchises in other cities, still is a holdout. Failure to sign up would dent the stadium's financial picture.

The new stadium, almost circular, is 750 ft in diameter from outside wall to outside wall. Framing consists of cantilevered steel box sections supporting the roof and upper grandstand and reinforced concrete for the lower grandstand.

A movable steel grandstand section will add 5,000 seats during football season. Another 2,000 seats will increase the stadium's capacity from 43,000 for baseball to 50,000 for football.

Maryland to Get a Levitt Project

Levitt & Sons, Inc., one of the nation's leading homebuilders, last week broke ground at Belair, Md., for its fourth self-contained and complete community.

The 4,500 houses planned for the 2,300-acre site 12 miles northeast of Washington, D. C., will be the smallest of the company's three Levittown tracts—Long Island, Pennsylvania and New Jersey. The first two contained more than 17,000 houses and the New Jersey tract, still under construction, will have 16,000 when completed.

The newest one, however, will boast some innovations—concealed TV antennas, central air conditioning. Otherwise, houses and development will be a package. The houses, priced from $14,990 to $22,990, will be fully equipped with appliances and the builder will provide parks, school and church building sites, sewer and water facilities, and a 30-acre commercial center.

Construction will move in step with that of the John Hansen Express Highway to Washington, which is scheduled for completion by the fall of next year. The development is expected to be completed in three to four years.

The Belair tract itself marks a departure from practice by William Levitt, president. Usually, the company concentrates on building and completing one community at a time. From now on, however, it will start projects simultaneously when demand develops and as land is acquired.

Right now, the Levitt company is looking for large sites in the New York City metropolitan area.

No new problem for the Levitt firm is the integration question that may face them again at Belair. Bill Levitt says the company will follow the local laws and customs. There are no signs now that the new suburb will be opened up to all races, as Levittown, N. J., by decree of the state Supreme Court.

Check Subs on Tax Withholding

- **Failure of subcontractor to withhold income tax and Social Security payments can cost money.**
- **To avoid trouble, determine the sub's business status—if he's bona fide, you're safe.**

General contractors who fail to check up on whether their subcontractors are making payroll deductions for income tax and Social Security can get in trouble with the Internal Revenue Service. That's the warning contained in a recent tax case decision in Texas.

A Fort Worth contractor was held to be responsible for the failure of a subcontractor to deduct taxes for his employees because the subcontractor was not an independent businessman. Therefore the "sub's" helpers were actually employees of the general contractor.

Internal Revenue Service emphasizes that there is no "drive" on to enforce the law in this respect. But the case points up a tax provision that many contractors may be overlooking:

A contractor can be stuck for retroactive payroll deductions if an employee claims Social Security and the government discovers that the contractor has not made the proper deductions.

If a subcontractor is an independent businessman, the general contractor has no responsibility for the "sub's" employees. But if the sub has no formal business organization, then the sub's helpers are really employees of the general contractor, who must make the appropriate payroll deductions.

For example: If a homebuilder lets out masonry work to someone who is an independent businessman, the homebuilder has no further responsibilities. But if he hires a lone-wolf bricklayer and tells him to go get himself a few helpers, then the builder is responsible for the helpers' withholdings. The problem comes up with other kinds of businesses in which some employees are itinerant or temporary, such as truck drivers or accountants who hire extra help on a temporary basis when a big job develops unexpectedly.

The National Association of Home Builders has advised its members of several guide lines the contractor can use to determine whether the sub is an independent businessman. They include:

- Does the subcontractor work without guidance as to performance?
- Does he work on the basis of a finished product rather than on time?
- Does he supply his own tools and materials?
- Does he hire his own helpers?

If the answer to all four questions is "yes," then he is probably an independent businessman and the general contractor will not be held responsible.

The association also suggests as a rule of thumb, though not a completely reliable one, that if the subcontractor advertises himself as a businessman, maintaining an office and is listed in the yellow pages of the local telephone directory, he is probably responsible for his own employees.

The contractor may also get a ruling in advance from the Internal Revenue Service by asking the sub to file IRS Form S-8. This will effect a ruling on whether the sub is an independent businessman. The contractor could also ask for a special clause in his contract with the subcontractor specifying that the subcontractor is responsible for employee deductions.

In tax action involving subcontractors, the U. S. Supreme Court has ruled that mechanics' liens by subcontractors supersede U. S. claims if state laws so specify. This means the federal government will have to wait its turn to collect taxes in two instances, the court says.

The court had accepted two cases originating in New York and North Carolina involving subcontractors who had filed mechanics' liens against a bankrupt prime contractor. In both cases, the federal government claimed priority for taxes due.

In the New York case, the high court majority vacated a decision of the state court of appeals, which had ruled that the federal taxing power is superior to state law, and returned the case to the state court for retrial.

In the North Carolina case, the Supreme Court upheld the decision of the U. S. Court of Appeals, which held that the mechanics' lien was prior to the tax lien under state laws.

Both decisions were based on the legal point that property rights are created by state laws, thus settlement of them should be in the states.

May Equipment Orders Improve

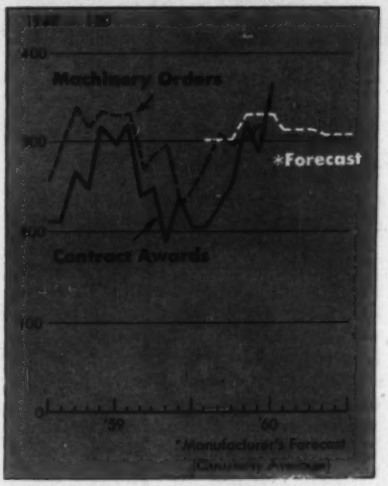
New orders for construction equipment received by manufacturers during May rose 5% above April to the highest level in 10 months. At 318, the New Orders Index for Construction and Mining Machinery tops every May except last year. The May value is 5% below May of last year, based on 1949 as 100.

The index is computed by the McGraw-Hill Department of Economics from reports by cooperating equipment manufacturers.

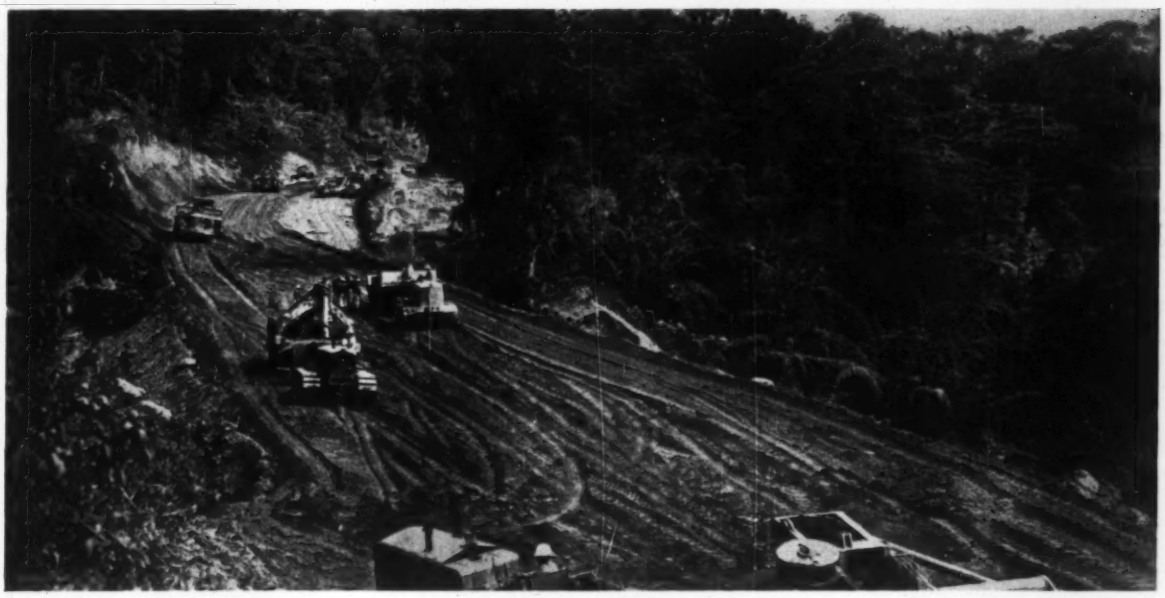
The outlook for construction machinery orders appears bright, however, as a result of construction awards in June, which soared to a record for the month. The Contract Awards Index is at 368, based on 1949 as 100.

In addition, highway construction should gain momentum during the next three months because of the Administration's invitation to the states to double their federal-aid road construction programs (ENR June 30, p. 19).

Bad weather in the spring bogged down a large amount of construction activity in many sections of the country and machinery orders slowed as a result.



Michigan is one state that hopes to offset the slow start on highway work caused by wet weather by round-the-clock activity, according to Highway Commissioner John C. Mackie. Night and Sunday work will be authorized where construction has lagged as a means of insuring job completions on schedule.



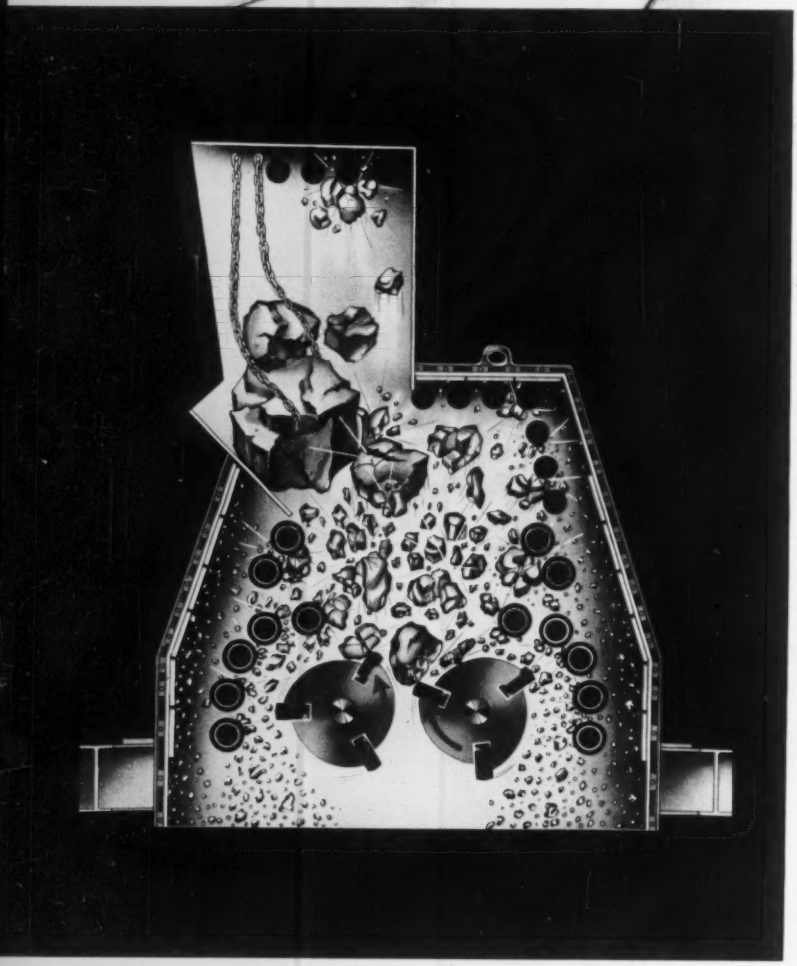
INSTEAD OF A ROAD

Sikorsky helicopters eliminate costly road building completely. They fly men, materials, equipment right to remote construction sites. Used *both* as a highly maneuverable CRANE and a high-speed TRANSPORT, a Sikorsky helicopter can save months of road building . . . eliminate many right-of-way problems . . . reduce your total costs dramatically. Examples? In New Guinea, an oil company flies a complete drilling rig with men and supplies to jungle locations. Once an eighteen-month operation, the entire job now takes just two months. In Puerto Rico's mountainous upcountry, a helicopter with three two-man ground crews can plant 100 power poles a day, three to four months' work with old construction methods. Savings in costs are from 70% to 80%. Want more facts on Sikorsky Aircraft "off-the-road" economies? Write us today.

A New World of Mobility by

SIKORSKY AIRCRAFT

Stratford, Connecticut / A Division of United Aircraft Corporation



Here's the Sultan of Swat when it comes to breaking rock with scientifically engineered *impact*. A Cedarapids Double Impeller Impact Breaker gets your operation out of the bush league and into the Majors in profit. It scores with high tonnage production in every inning. It up-grades the finished product into the fine cubical shape that wins the specification pennant. With its 40 or 50 to 1 reduction-ratio batting average, there's less need for pinch hitting secondary crushers. And you'll pitch more money into the bank with a low earned run average in maintenance costs.

In the clutch, drive in the winning production run with a Cedarapids Single Impeller Impact Breaker.

This is Cedarapids' TRUE CONTROLLED IMPACT ACTION that keeps you in the competitive ballgame!

The tremendous clout delivered by the COUNTER-rotating impellers drives the rock into deep center where it smashes into incoming rock dropping rapidly from the high angle feed. With 50% of rock breaking against rock in suspension, manganese wear is sharply reduced. The *counter* rotation of the impellers also pulls line drives right and left to the adjustable breaker bars which are strategically positioned to field the broken rock and fire the desired sizes to the discharge opening. The finished cubical specification product is the result of Cedarapids *true* impact.

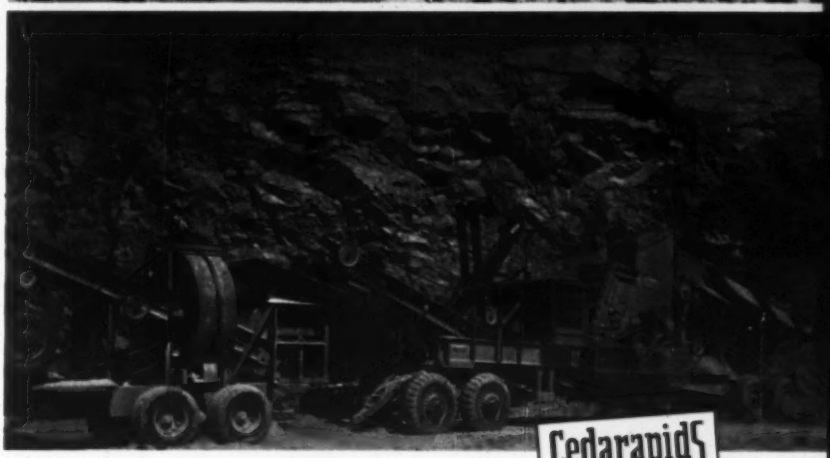
Doubles or Singles will score more productive runs when they're

CEDARAPIDS IMPACT BREAKERS

Cedarapids
Built by IOWA

This Double puts profit in scoring position. It's a Cedarapids 3645 Double Impeller Impact Breaker batting around .300 in tons per hour in this stationary plant installation. Six models give you the capacity range you need.

A Single Impeller Impact Breaker is as effective as a single to right field with the bases full for primary breaking or when conditions require an economical intermediate breaker between your primary and secondary. Two sizes available for portable or stationary application.



Fast on the base paths! It's a 100% portable Double Impeller Impact Breaker. From your first job you can streak to second, then third . . . and slide home with the profits. Two sizes, on wheels, keep you in position to score with fewer between-job delays.

Cedarapids
Built by IOWA

IOWA MANUFACTURING COMPANY
Cedar Rapids, Iowa

INS-17

Printed in U. S. A.

WHEN CITIES PLAN URBAN RENEWAL

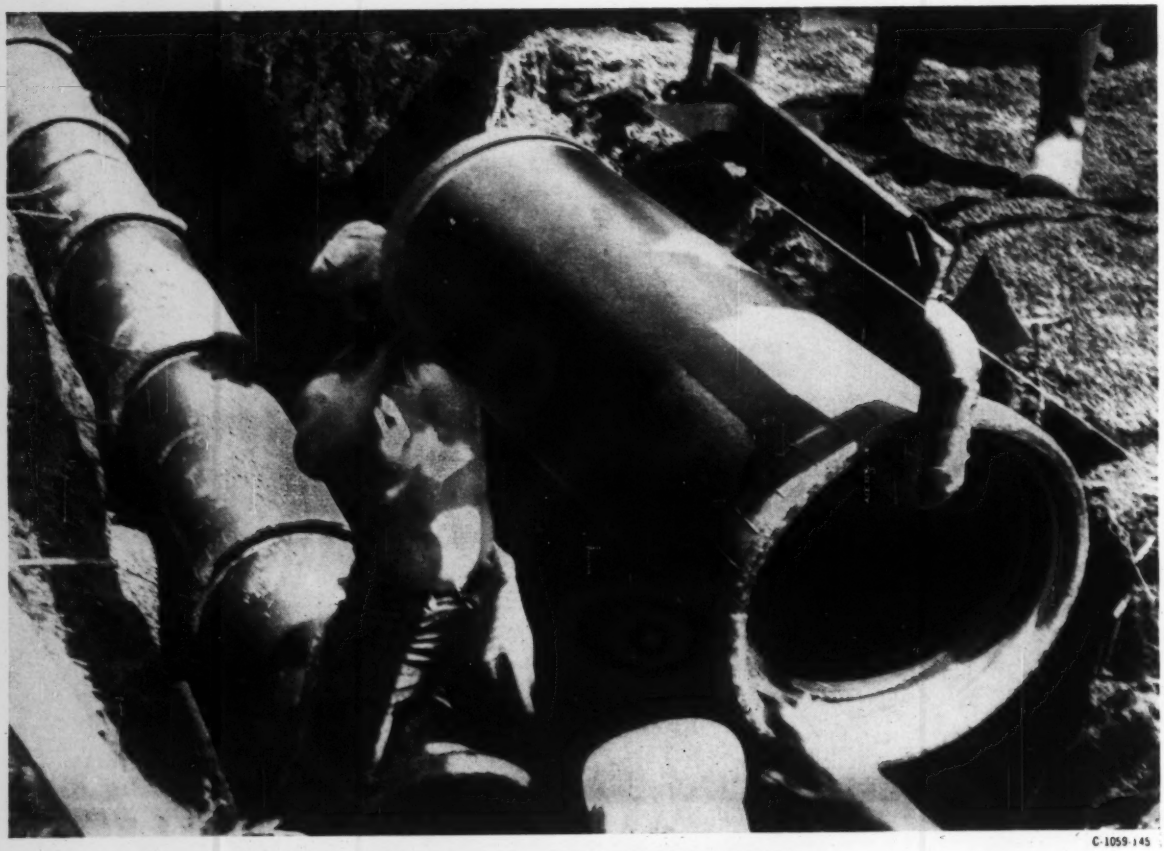
it pays to specify Vitrified Clay Pipe

PITTSBURGH has used miles and miles of Vitrified Clay Pipe in preparing its sanitary system for the bright future that lies ahead of any city willing to stir itself and invest in America's growth and progress. New research-developed, compression joints for Clay Pipe reached the market just in time for many of these far-seeing projects.

Like Pittsburgh, growing communities everywhere need the permanence and safety that only Clay Pipe can provide. Clay Pipe is the only pipe that never wears out . . . does not rust, rot, corrode, or crumble. And with its new research-developed, factory-made compression joints, Clay Pipe is faster and easier to install than ever before.

When your community plans new sewerage facilities, be sure to consider the exceptional advantages of Clay Pipe. Its exclusive long-term guarantee is your assurance of permanent, maintenance-free service. Only Clay Pipe has *all* the features you can trust to handle industrial growth and other expansions that go hand in hand with modern cities on the march.

NEW COMPRESSION JOINTS MAKE CLAY PIPE BETTER THAN EVER



C-1059-145

Vitrified **CLAY PIPE** *Never Wears Out*

NATIONAL CLAY PIPE MANUFACTURERS, INC. 1820 N Street, N. W., Washington 6, D. C.
311 High Long Bldg., 5 E. Long St., Columbus 15, Ohio • 445 Ninth St., San Francisco 3, California • Box 172, Barrington, Illinois • 1401 Peachtree St., N.E., Atlanta 9, Georgia

Surplus Equipment Import Bill Killed by Congress

Killed by the House before Congress recessed was a bill that could have brought large quantities of surplus equipment on to the market for purchase by contractors at knock-down prices (ENR May 26, p. 93).

The measure – H.R. 9996 – was strongly opposed by the Construction Industry Manufacturers Association, which argued it would add to the "further deterioration of an industry that is already operating at slightly over 50% of capacity."

The bill would have allowed importation of U.S. equipment generated abroad by various U.S. agencies and the armed forces, if such importation "wouldn't hurt the U.S. economy." The existing law bars entrance of surplus equipment unless the Secretary of Commerce decides that it would "relieve a domestic shortage or otherwise be beneficial to the economy of the country."

FTC Hits a Kaiser-Owned Venture a Second Time

The Federal Trade Commission charged last week that Kaiser Steel Corp., Oakland, Calif., violated the antimerger statutes by acquiring 45% of the voting stock of Allison Steel Manufacturing Co., Phoenix, Ariz.

The FTC contends the 1958 acquisition "may substantially lessen competition or tend to create a monopoly in the fabrication and erection of structural steel and in the manufacture of associated steel products", in western states. In addition to steel, Allison also manufactures derricks, cranes and heavy truck bodies.

The FTC allowed Kaiser 30 days to appear before it with an answer to the complaint.

This is the second FTC action to be brought within two weeks against a Kaiser enterprise. Permanente Cement Co. of Oakland, Calif., an affiliate of Kaiser Industries Corp., is accused of "materially and substantially" reducing competition in the building materials field through certain acquisitions (ENR June 30, p. 57).

Cited were Permanente's purchase of Olympic Portland Cement Co., Pacific Building Materials Co. and Ready Mix Concrete Co., of Portland.

According to the FTC complaint, they were competitors of Permanente and Permanente's subsidiary, Glacier Sand and Gravel Co., Seattle.

Both have denied the charges. A hearing will start this summer.

Business in Brief . . .

• **Spending for power**—Construction outlays this year by Arizona Public Service will total $28 million, according to John Jacobs, chairman. Of the total, $16.5 million will be spent in the second half.

• **Contracts from food**—A food distribution center planned for Oakland, Calif., may result in ultimate investment of $20 million to $25 million. The port commissioners awarded a lease and options to Williams and Burrows, Inc., Belmont, Calif., for the development of 173 acres in the Port of Oakland Industrial Park.

• **Non-profit building**—Construction of non-profit hospital, church and educational buildings may top 1959's total of $847 million by 15% to 19%, says the American Association of Fund Raising Counsel, Inc. In the first five months religious volume hit $381 million; private hospital construction, $236 million; and private educational construction, $230 million.

• **Promoting by film**—F. H. McGraw & Co., Hartford construction company, has produced a color film showing all the construction operations of an aluminum production plant in Ohio and a bauxite refinery in Louisiana. It will be distributed to manufacturing companies and engineering groups.

• **Contract to Turner**—A contract for construction of a $15-million to $18-million office building complex in Milwaukee has been awarded to Turner Construction Co., New York City. Work may start in a few weeks, according to the sponsor, Wisconsin Clybourn Urban Redevelopment Corp. The project will include a park plaza, a bank building, a 22-story office tower, and a 750-car parking garage.

• **Biggest commitment**—The Federal Housing Administration has made its largest single commitment for an apartment and commercial building project—$17.8 million. The project, called Marina City to be located in Chicago, is sponsored by the Building Service Employees International Union. Completion of the twin, 60-story towers and the commercial buildings is scheduled for 1962. Total cost is estimated at $36 million.

• **San Jose Airport**—A $17-million airport expansion project has been recommended to officials of San Jose, Calif., by Radar & Associates, Miami consulting engineers. As a starter, the consultants recommend a terminal building, $1 million; aircraft parking aprons, car parking areas and traffic service areas, $1 million; and a 6,300 ft runway and taxiway, $3 million.

Floating Bridge in More Hot Water

Washington State's trouble-plagued Hood Canal floating bridge is navigating in difficult financial waters. The State Toll Bridge Authority says that construction funds will be exhausted about September 1.

D. B. Hedges, authority secretary, concedes the state does not know where to obtain the money needed to complete the $17-million job, although three possible sources are under consideration—sale of more revenue bonds, a loan from the State Motor Vehicle Fund, or an advance from the Governor's Emergency Funds. Each of these potential sources, however, could be closed off because of money and legal problems.

The structure was originally scheduled for completion last May 18. But three times, concrete pontoons either sank or were seriously damaged as a result of storms. The latest mishap was in February (ENR Feb. 18, p. 30).

Cost of design changes and reconstruction are not yet determined, but unofficial estimates place additional outlays at approximately $7 million.

While wrestling with the Hood Canal structure, however, the Toll Bridge Authority is looking ahead to construction of another floating bridge—a second structure across Lake Washington, east from Seattle. The group will receive financing proposals for a 30-million bond issue until July 20.

Guy F. Atkinson Co. of San Francisco holds a construction contract of $10.97 million. Start of construction has been delayed more than a year because legal problems blocked the sale of bonds.

'60 Wage Boosts Average 14.6 Cents

Construction wage increases recorded by ENR during the first six months of 1960 have averaged 14.6 cents an hour. The trend toward long-term labor contracts has been strengthened, and the average deferred wage increase has been running slightly over 14 cents an hour.

This year's collective bargaining appears to have shaken off the effects of the 1958 recession, judging from the 1960 settlement reports that have come to ENR's attention.

Unions are winning current and deferred basic wage increases that run ahead of last year's average by nearly a cent an hour (see table).

This is taking place despite what seems to be stronger resistance on the part of contractors. Of the settlements reported to date this year, 15.6% were reached after strikes began. The comparable figure for last year was 11%.

The increases negotiated so far this year are on top of an average hourly construction wage scale of $3.54, which is the U. S. Labor Department's estimate of the industry wage level at the end of 1959.

By midyear, a marked shift of interest had occurred in contract duration. The frequency of one-year contracts was down, while that of two-year contracts was up. Three-year contracts were up slightly in number but longer-term contracts were down. Last year, for example, 35% of the 1959 contracts were for one year, 38% for two years. On June 30 this year, the comparable ENR figures were 26% and 46%. The percentage change in three-year contracts was +2%.

Contractors, however, appear to be paying more than they did last year for the stability which long-term contracts assure.

Unions that agreed to commit themselves for more than a year are receiving 1960 increases that are higher on the average than those provided for in one-year contracts. The difference this year is almost one cent an hour, as opposed to a nominal amount last year. The size of deferred wage increases has varied widely (see table) and those now scheduled for 1961 and 1962 average out at 14.1 cents an hour. This, of course, gives the upward wage trend a considerable amount of perpetual motion.

Bargaining during the first six months of this year has also reflected increased use of the installment method of paying wage increases, which saves contractors some money by postponing the full impact of the wage increases. Twenty percent of the contracts reported to June 30 have broken one or more of their annual increases down into at least two installments. The longer the contract, the more frequently this method has been used.

Most of the shift to higher wage levels has occurred so far this year through a greater use of the 15- and 20-cent settlement figures. The three most popular settlement figures have been 15, 10 and 20 cents. But use of the 10-cent figure has fallen off by 5%, while the 15- and 20-cent figures have gained 3% and 5% respectively.

As usual, the size of individual annual increases has varied widely. It has ranged from 2½ cents in one contract to 40 cents in another, excluding instances in which no increase was granted.

Wage freezes have been rare. Two one-year and one two-year contract have been reported with no change in wage scales. One two-year and one three-year contract provide for no wage changes in one year of their terms.

There has been no evidence of interest in escalator clauses that relate wage boosts to increases in the cost of living. And the use of wage reopeners in long-term contracts has been infrequent.

The '60 Wage Picture

1. Base pay increases are higher

Type of contract	Average increase in 1960 (1st half)	1959	1958
One-year contract	14.0¢	13.7¢	15.5¢
Long-term contract			
First year	14.9¢	13.8¢	14.5¢
Second Year	14.1¢	13.4¢	13.7¢
Third year	14.1¢	13.4¢	12.6¢

2. Trend to long-term contracts continues

In 1960 (first half), 74% of contracts were long term.
In 1959, 65% of contracts were long term.
In 1958, 54% of contracts were long term.

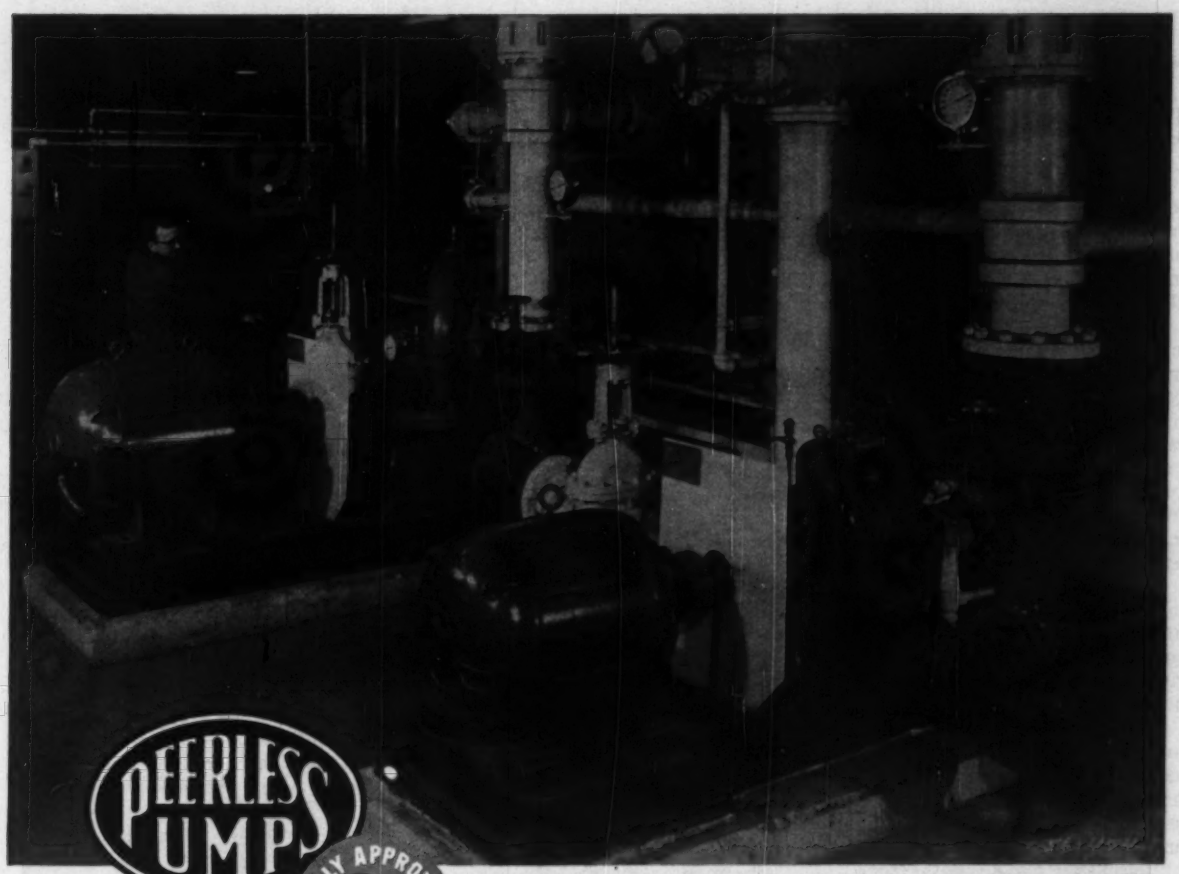
3. 15¢ hikes becomes more popular

Amount of increase	% of all contracts 1st half 1960	1959
15¢	30%	27%
10¢	20%	25%
20¢	13%	8%
12½¢	8%	8%
25¢	3%	5%
All others	26%	27%

Some Sample Increases Under New Long-Term Contracts

(Basic Wage Boosts Only)

Union	1960	1961	1962	Total
Lathers, New York City	15¢	20¢(10,10)	30¢(10,20)	65¢
Bricklayers, Minn.-St. Paul	15¢	15¢	10¢	40¢
Carpenters, Des Moines	20¢	17½¢	17½¢	55¢
Plasterers, Seattle	25¢	18¢	17¢	60¢
Plumbers, Southern Calif.	25¢	25¢	25¢	75¢
Painters, Buffalo	15¢(10,5)	17½¢(12½,12½)	15¢	47½¢
Iron Workers, Hartford	10¢	10¢	to be negotiated	



PEERLESS FULLY APPROVED
FIRE PUMPS...

FULLY APPROVED UL FM

Prudential Insurance Co. takes no chances on fire in its recently erected Chicago Office Building. Peerless pumps give immediate protection against fire automatically, without human attention.

HOW TO DEAL WITH A FIRE BEFORE IT STARTS!

To insure adequate protection against the hazards of fire, a qualified independent fire protection system is a must. And to be doubly sure of the best system, the vital heart of the unit, the pump, should be the best money can buy. That's where Peerless *fully-approved* fire pumps excell.

Throughout a third of a century, Peerless fire pumps have attained an enviable and pre-eminent reputation in protecting all types of buildings, plants and warehouses. Put this know-how to work on your protection problem. See how Peerless' combination of top quality fire pump equipment, exacting engineering application and nationwide service can serve you best. In many instances, the savings effected thru more favorable insurance premiums can pay for the installation. For fire pumps at their very best look to the leader, look to Peerless. Write for bulletin B-1500 today.

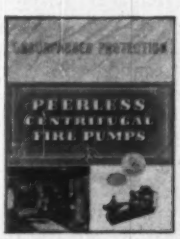
Available with steam turbine, engine or electric motor drives, Peerless fire pumps are available for high pressure sprinkler systems, or foam smothering systems in every kind of commercial, or industrial installation.

fmc FOOD MACHINERY AND CHEMICAL CORPORATION

Putting Ideas to Work

Peerless Pump
HYDRODYNAMICS DIVISION

Plants:
Los Angeles 31, Calif. and Indianapolis 8, Ind.



Peerless Pump, Hydrodynamics Division, Food Machinery and Chemical Corporation
2005 Northwestern Ave., Indianapolis, Indiana ENR

Gentlemen: Please send me immediately a copy of your Bulletin B-1500.

NAME_____

COMPANY_____

ADDRESS_____

CITY_____ ZONE_____ STATE_____

Labor Board Halts Burt Boycott

A cease and desist order from the National Labor Relations Board has written another chapter in the long dispute between the sheet metal workers union and Burt Manufacturing Co. of Akron, Ohio.

The board ruled that union efforts to curb installation of ventilators and other products made by Burt were unlawful secondary boycotts even though some of the union's objectives may have been legitimate.

In reaching its decision, the board spiked the fears of some employers that the Landrum-Griffin labor law's hot cargo exemption for the construction industry legalized product boycotts.

The critical factor behind the Burt dispute is that the firm's employees are organized and represented by the steelworkers union but are performing work within the jurisdiction of the sheet metal workers union.

The board said that the international union, as a matter of policy, has opposed installation of products manufactured by employers, such as Burt, who do not have labor agreements with the union. Implementation of this policy at the local level has taken the form—at least in the cases of Locals 65 and 70—of persuading union members not to install Burt products and, through this pressure, to force contractors to quit doing business with Burt.

The union justification of the boycotts, according to the NLRB, is the preservation of work opportunities for sheet metal workers employed by union sheet metal contractors. Others have termed the boycotts a lawful attempt to protect the wages and working conditions of sheet metal workers.

In rejecting the union defense, the board said a union commits an unlawful secondary boycott if any one of several objectives violates the law.

It found that Locals 65 and 70 induced workers to refuse to install Burt products in an effort intended, among other things, to force contractors to quit doing business with Burt—action that the law precisely forbids. The international union was also guilty, the board said, because it is responsible for the acts of its agents.

The board also found, but not unanimously, that the international and three of its locals attempted, through the boycotts, to force Burt to recognize and bargain with the sheet metal workers union. The law prohibits this when the union has not been certified or when, as in the Burt case, the bargaining rights are held by another union.

No legalization of the sheet metal workers' activity against Burt can be found in the Landrum-Griffin law, a majority of the board noted.

Referring to the law's hot-cargo exemption for construction industry agreements affecting the contracting or subcontracting of on-site work, the board said: "The legislative history shows, however, that the proviso was not intended to affect the law developed under Section 8(b) (4), or to permit boycotts of goods manufactured in an industrial plant for installation at the job site."

Prevailing Wage Board Set Up

Kentucky's new prevailing wage law, which requires recognition of union scales, has been put into operation by Gov. Bert T. Combs' appointment of the Prevailing Wage Board.

The board, composed of the Commissioner of Labor, one labor and one employer representative, is charged with the task of determining prevailing wages for all public works projects in excess of $500.

The new law was passed by the 1960 legislature and became effective last month.

Unlike the federal Davis-Bacon Act, it specifically requires use of union negotiated wage rates in the determination of wages contractors are now compelled to pay on public works.

The law requires the payment of wages not less than those prevailing in the locality where the work is performed. The board is directed to set as prevailing wages those rates that prevail under collective bargaining agreements or understandings between unions and employers if a sufficient number of workers are covered by the agreements to furnish a reasonable basis for considering those rates to be prevailing.

The law also imposes a limitation on the number of hours that can be worked.

It provides that workers cannot work more than eight hours a day or 40 hours a week except in cases of emergency caused by fire, flood or damage to life or property. Workers employed in excess of the limitation must be paid overtime at the rate of time and a half the prevailing rate.

Brown-Olds Rejected

Federal court rules remedy is defective

Efforts of the National Labor Relations Board to break the closed shop in the construction industry sustained another blow last month when the Eighth Circuit Court of Appeals ruled that the board's use of the controversial Brown-Olds remedy is defective.

It said that the board, in ordering the return of dues and fees collected by a union, must first find that an illegal hiring arrangement existed and that the fees and dues were "coercively collected" as a result of that arrangement.

It accordingly refused to enforce a Brown-Olds order against a local of the operating engineers union. The case involved discharge of a worker put on an Arkansas project by Armco Drainage and Metal Products, Inc. (ENR July 16, 1959, p. 151).

The Brown-Olds remedy is the big stick the board uses to make unions and contractors obey the law.

The law says that job applicants cannot be rejected simply because they do not belong to a union or to an appropriate union. Through the Mountain-Pacific standards, the board has tried to make the industry abandon the closed shop by adopting hiring practices that conform to the law.

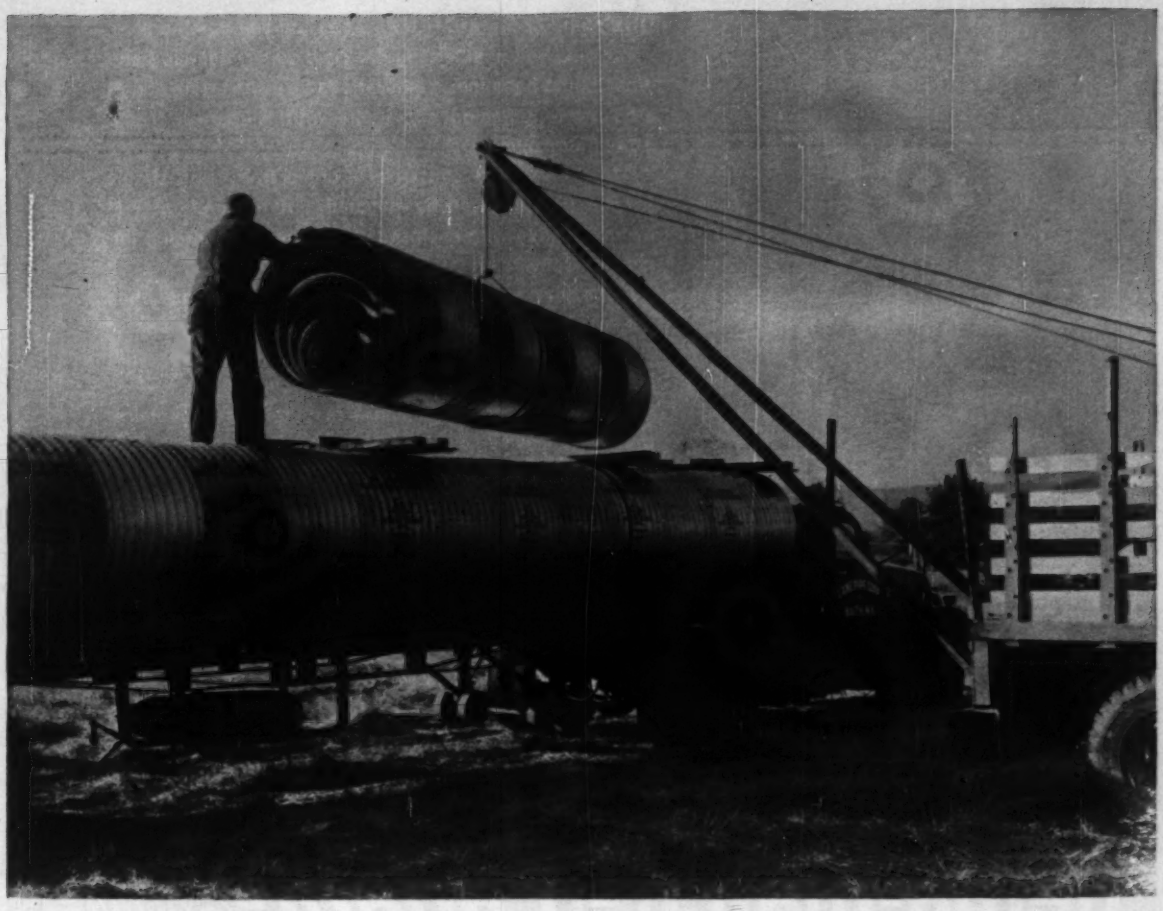
When violations are found, the board has been ordering a refund of all dues, fees and assessments collected by the union during the existence of the illegal hiring practice or arrangement. The refunds can be assessed against contractors as well as against the offending union.

The board, however, has not required a showing that a worker would not have made the union payments or joined the union if the illegal hiring arrangement had not existed. It is this absence of cause and effect that the courts have objected to.

Five other circuit courts have taken positions similar to that of the Eighth Circuit. Both the Mountain-Pacific and Brown-Olds issues are up for U. S. Supreme Court review in the fall term.

In this latest rejection of the Brown-Olds rule, the court found no evidence that the existence of an illegal hiring practice had forced any worker to join the union or pay the union any money to get or keep a job.

Under the Mountain-Pacific case, all hiring arrangements must provide for nondiscriminatory hiring, right of employers to reject applicants and public disclosure of the arrangement.



Long lengths and light weights cut installation time

...when you specify Beth-Cu-Loy for drainage structures

One of the chief advantages of using drainage pipe made of Beth-Cu-Loy galvanized steel sheets is the long lengths—and the light weights—that are feasible. Here's an example: a 20-ft length of 18-in. diameter pipe made of 16-ga Beth-Cu-Loy weighs but a trifle over 300 lb.

Easy to Lift . . . Easy to Make Joints

Only the simplest of lifting machinery is needed to unload and place the Beth-Cu-Loy pipe in the trench. And, of course, the long lengths reduce the number of field joints, enabling the laying crews to keep right up with the trench diggers. The joints themselves are simple and time-saving.

Steel for Strength, Durability . . . Flexibility, too

Light though it is, pipe made of Beth-Cu-Loy has the great strength of steel, and the corrosion-resistance of zinc. It is flexible enough to "give" with the fill and help distribute the load around its own periphery. It conforms well to grade and alignment, and absorbs impact, vibration, and the shifting effect of weather changes.

Beth-Cu-Loy sheets meet the rigid specs of the American Association of State Highway Officials. If you would like further details about Beth-Cu-Loy sheets for durable drainage pipe, just get in touch with any Bethlehem sales office.

Steel

For Strength
... Economy
... Versatility

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.
Export Distributor, Bethlehem Steel Export Corporation

BETHLEHEM STEEL

BETHLEHEM STEEL

ONE pump becomes MANY . . . saving you pump dollars . . . giving you a wide range of clear water, non-clog and other liquid-handling modifications . . . when you standardize your pumping operations with Fairbanks, Morse ADAPT-*ABLE* pumps.

F-M ADAPT-*ABLES* consist of a pump frame and simple adapter to which can be attached a wide variety of F-M hydraulic ends with enclosed, semi-open or non-clog impellers. Conversion is easy . . . inexpensive, too.

F-M ADAPT-*ABLES* are *"NEMA-Matched"*: pump mounting dimensions are standardized with similar dimensions of Nema-driving motors. Gone is the need for make-shift height-adjusting blocks and odd-bore couplings!

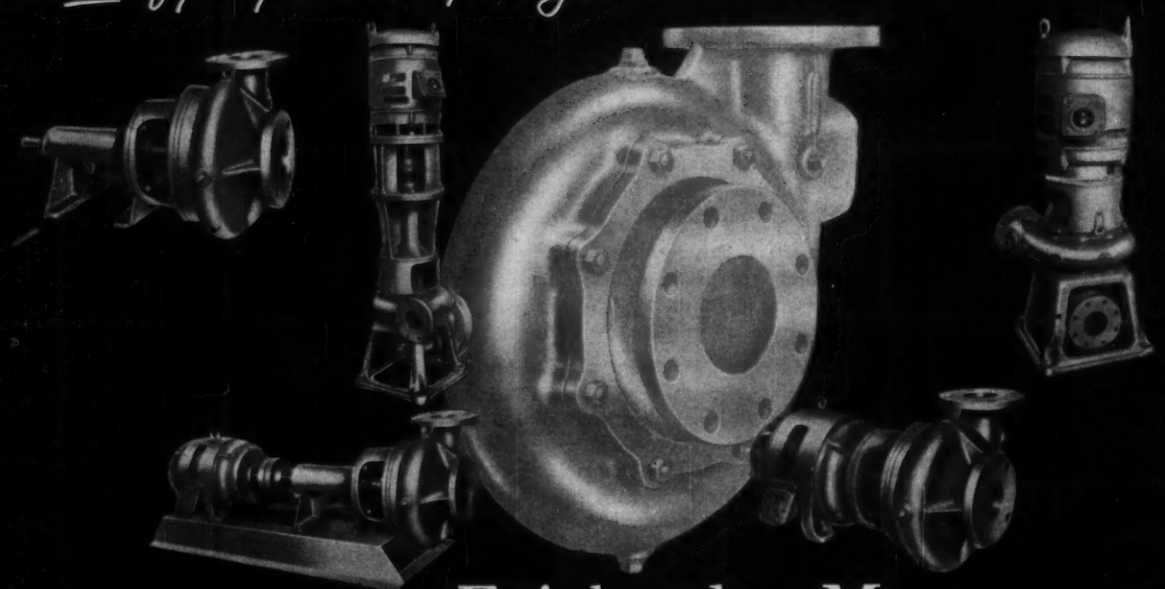
The ADAPT-*ABLE* design means that the most economical frame size may be selected to match the motor horsepower requirements of the pumping job.

And there are other advantages: choice of mechanical seals or conventional stuffing boxes with easy field change-over from one to the other . . . interchangeable bearings for pumps and motors. For special liquid handling problems, hydraulic ends can be specially alloyed to fit the needs: we've been solving such problems for generations.

Regardless of *what* liquids you pump . . . or *where* . . . Fairbanks, Morse builds pumps and *matching* power units for *your* use . . . in a greater range of sizes, types and capacities than *anyone, anywhere.* Start SAVING pump and motor dollars by putting F-M's vast hydraulic experience to work in your plants, process lines and products . . . now!

"nema-matched" *adapt-ables*

. . . a lot of pumps in ONE package!



Fairbanks, Morse

THE PROUDEST NAME IN PUMPS

Pump and Hydraulic Division • Kansas City, Kansas

A MAJOR INDUSTRIAL COMPONENT OF **FAIRBANKS WHITNEY CORPORATION**

Major Strikes Still Unsettled

Union demands from Boston to San Francisco are running as high as 27 cents an hour in wages

Collective bargaining stalemates continued to plague the construction industry in widely scattered areas last week, including Boston, New York City, San Francisco and Buffalo, N. Y.

Striking carpenters and bricklayers had also halted most major construction work in the Trenton, N. J., area, and San Diego, Calif., carpenters voted to strike members of the employer association with which they bargain.

Union demands were for the most part steep. Some unions had rejected three-year offers running as high as 65 cents an hour, and others were seeking wage boosts up to 27 cents an hour a year. New York City sheet metal workers asked for 85 cents over three years.

Boston locals of the bricklayers union, who started to strike in May, have tied up millions of dollars worth of work in the city and its suburbs. Among the few locals that have settled is one in Waltham, where the new three-year pact grants a 47-cent increase, payable in installments of 15, 17 and 15 cents. Local 3 in Boston wants 25 cents in wages now, plus five cents more in fringes.

In New York City, the asbestos workers, sheet metal workers and steamfitters were still out, with nine other trades that have not settled continuing to work without contracts. Rejected contractor offers in two instances embraced three-year, 65-cent increases in basic wages.

The Buffalo strike, which is about as old as the Boston one, has been in mediation without much success. Earlier, the painters settled for 47½ cents in wages over three years, but carpenters, cement masons, ironworkers, bricklayers and laborers remained on strike after rejecting a three-year, 55-cent offer. The plumbers are also out, and accumulated payroll losses alone are estimated in excess of $10 million.

In San Francisco, the sheet metal workers struck last week for 25 cents a year in a two-year contract that would grant eight paid holidays. Contractors offered 22½ cents now and 21½ cents next year but no paid holidays. Striking plasterers demanded 27 cents an hour as opposed to a contractor offer of 12 cents.

The Trenton tie-up was caused by the bricklayers, who were asking 70 cents an hour in a three-year contract, and the carpenters, whose demands included 55 cents for three years.

Meanwhile, carpenters in Milwaukee, Wis., settled for a two-year contract after a short strike. They will get a 24-cent increase in wages—10 cents now and 14 cents next year—with three cents more now for the vacation fund and an additional three cents for welfare.

Labor in Brief . . .

• **Agency shop**—An agency shop clause in a labor contract is unlawful and unenforceable under North Carolina's right-to-work law, according to the state's attorney general. While such laws do not require workers to join a union, they do compel nonunion workers in a union company to pay the union an amount equal to union dues, fees and assessments.

• **Situs picketing**—The National Association of Manufacturers says that the congressional decision to reconvene in August after the political nominating conventions raises a "major threat" of passage of the construction industry's controversial situs picketing bill to reverse the Denver Building Trades case.

• **New president**—The Association of Engineering Employees of Oregon, representing 672 engineers, engineering aides and technicians employed by the Oregon State Highway Department, has elected Dave Moehring of Salem as president and has accepted a salary committee report that highway salaries are five to 13% below the Pacific Coast average.

• **Right to manage**—The U. S. Chamber of Commerce and the National Association of Manufacturers have thrown their weight behind a bill before Congress to reverse a Supreme Court decision that allows a union to strike for a labor contract clause preventing the unilateral abolition of jobs. The bill is S. 3548, introduced by Sen. Everett Dirksen.

OFFICIAL PROPOSALS

Bids: July 15, 1960

Zipaquira Thermal Electric Plant
Empresa De Energia
Electra De Bogota

NOTICE TO CONTRACTORS

The Empresa de Energia Electrica de Bogota will accept proposals for furnishing all labor tools, equipment and field supervision, and such materials as will be necessary for the construction of the Civil and Mechanical Works of a 33,000 KVA Steam Electric Power Generating Station.

The Civil and Mechanical Works include, but are not specifically limited to, the following:

1) Excavation, foundations, structural steel for the Powerhouse, the coal and ash handling facilities, the condenser cooling water circulating system, and miscellaneous yard structures, systems and facilities;
2) The erection of one (1) 308,700 lb/hr. boiler;
3) The erection of one (1) 33,000 Kw steam turbine generator and surface condenser plant;
4) The erection of certain major auxiliaries, such as pulverizers, pumps, tanks and heaters;
5) The installation of certain major piping systems, such as condenser cooling water, main steam, pulverized coal, etc., and
6) The installation of certain items of electrical equipment and materials, such as motors, conduit, wiring and grounding.

Interested Contractors who have satisfactorily performed comparable work previously should obtain copies of the bid documents from Empresa de Energia Electrica de Bogota, Apartado Aereo No. 4453, Bogota, Colombia.

Information concerning the bid documents can be obtained from the Consulting Engineers, The J. G. White Engineering Corporation, 80 Broad Street, New York 4, N. Y. and OLAP-INGENIERIA, Apartado Aereo No. 5099, Bogota, Colombia.

Invitations for proposals will be available on July 15, 1960. Proposals are to be based on lump sum prices with unit price adjustments for increases or decreases in the work.

Bids: July 26, 1960

Construction of Bridge Substructure

COMMONWEALTH OF MASSACHUSETTS. Department of Public Works. NOTICE TO CONTRACTORS: Sealed proposals for Constructing Bridge Substructure for bridge carrying Interstate Route 195 over the Taunton River, Federal Aid Project I-195-3(21)11, Contract 1 in the Municipalities of SOMERSET and FALL RIVER will be received at Room 427, 100 Nashua Street, Boston, Mass., until 2:00 P. M. of TUESDAY, July 26, 1960, and at that place and time publicly opened and read. Proposal guaranty: $250,000., payable to Massachusetts Department of Public Works. A bid bond in said amount will be acceptable. Contractor may purchase one set of project specifications at Room 427, above address upon payment of $25., which entitles him to receive a set of plans upon presentation of proper receipt to Blue Print Room 740. Payment shall be made with cash, bank check, certified check or money order drawn to the order of Massachusetts Department of Public Works. Amount refundable to bidders, who return plans in good condition to said blue print room within 3 days after opening of bids. A maximum of 4 additional copies of project specifications may be obtained if desired at a cost of $3. each, which is not refundable. Complete information at said office; plans on display at Department's District office in Taunton. Minimum wage rates and dump-truck rates for this project have been predetermined by law and are set forth in the bid proposal. Right reserved to waive any informality in or reject any or all proposals. An award will not be made to a Contractor who is not equipped to undertake and complete the work.

By: ANTHONY N. DINATALE, Commissioner of Public Works.
June 30, 1960

OFFICIAL PROPOSALS

Bids: July 28, 1960

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, and Article 2, Title 9 of the Public Authorities Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A. M., advanced standard time, which is nine-thirty o'clock A. M., eastern standard time, on the 28th day of JULY 1960, by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 1, G. L. Nickerson, District Engineer, 353 Broadway, Albany, New York						
Essex Rte. 73	R.C. 60-132	Lake Placid-Cascade Lakes, Pt. 2, S.H. 8390 Cascade Lakes-Keene, S.H. 8274	10.97	Asphalt Concrete	$23,000 Plans $5	$416,000
Saratoga & Warren Int. T. Rte. 87	FITS 60-11	Interstate Rte. 502 (Route 9 to Hudson River) S.H. FISH 58-19; Interstate Rte. 502 (Hudson River to Gurney Lane) S.H. FISH 59-9 Project No. I-87-3(34)	9.70	Traffic Signs	$2,100 Plans $5	39,000
DISTRICT No. 2, Lacy Ketchum, District Engineer, 109 No. Genesee Street, Utica 1, New York						
Fulton & Hamilton Rte. 30	R.C. 60-128	Northville-Chapmans Corners S.H. 362; Northville Village-North, S.H. 5065; County Line-Hope Center, S.H. 5038	4.32	Asphalt Concrete, Type 1A	$9,500 Plans $5	168,000
DISTRICT No. 3 Earl E. Towlson, District Engineer, 333 E. Washington Street, Syracuse, New York						
Cayuga Rte. 34	FAC 60-5	City of Auburn; North Street Arterial Highway (Seymour St. to North City Line) Project No. U-1114(4)	1.19	Asphalt Concrete Type 2A=1.16 M.; Misc. Work=0.03 Mi.	$30,000 Plans $5	546,000
Oswego Rte. 104	FARC 60-105 FAC 60-8	Oswego-Sterling, S.H. 280; City of Oswego, East-West Art. Highway (West Seneca St. & West Bridge St.) Project No. U-346(9)	1.58	Asphalt Conc.=1.31 Mi. Misc. Work=0.27 Mi.	$46,000 Plans $5	846,000
Seneca Rtes. 5, 20, 96A	FARC 60-127 *	Geneva-Macdougall, S.H. 8183; Geneva-Waterloo, S.H. 5087; Geneva-Waterloo, Pts. 2 & 3, S.H. 8240 Project No. F-452(8); U-452(8); U-406(5); UG-452(8)	2.69 (0.63 Acc.)	9" Cem. Conc. Pavt.=2.96 Mi; Asph. Conc. Ty. 1A=0.36 Mi.; 1 Br. I-Beam 3 Sp. 291'; 1 Rgs I-Beam 2 Sp. 175.5'	$109,000 Plans $5	1,971,000
DISTRICT No. 4, B. F. Perry, District Engineer, Barge Canal Terminal, Rochester 1, New York						
Monroe	FITC 60-6	Interstate Rte. Conn. 580, S.H. FIC 58-2; Rochester City Eastern Expressway Pts. 2 & 3 Project No. I-490-2(18)	1.23	Traffic Signals	$3,500 Plans $5	60,000
Monroe Rte. 250	FARC 60-103	Mosley Road, S.H. 1836 Hannan Corners-Fairport S.H. 1290 Project No. S-684(2)	3.90	Asphalt Concrete	$13,000 Plans $5	227,000
Monroe	M 60-6	Bridge E-176 Websters, near Spencerport; Bridge E-177 Cresys in Adam's Basin	....	Cleaning & Painting 2 Bridges over Erie Canal	$300 Plans $5	5,400
DISTRICT No. 5, E. G. H. Youngmann, District Engineer, State Office Bldg., 65 Court Street, Buffalo 2, New York						
Erie Rte. 5	FAC 60-10 FAC 60-11	City of Lackawanna; Hamburg Turnpike Art. Highway (Ridge Rd.-North City Line); City of Buffalo: Fuhrmann Blvd. Art. Highway (So. City Line-Tifft St.) Project No. U-750(20)	0.66	Asphalt Conc. Ty. 2A=0.49 Mi. Cement Conc. Pavt.=0.11 Mi. Misc. Work=0.06 Mi.	$15,000 Plans $5	273,000
Erie Rte. 5	FATC 60-5	Main St. Pt. 1, S.H. 69; Williamsville Village, S.H. 5061; Main St. Pt. 2, S.H. 87 Project F-933(7)	1.41	Traffic Signals	$3,000 Plans $5	52,000
DISTRICT No. 6, William J. Dennis, District Engineer, State Office Bldg., 30 West Main Street, Hornell, New York						
Steuben Rtes. 15 & 17	FATS 60-10	Painted Post-West City Line at Corning, Pt. 1, S.H. FASH 58-10; Painted Post-West City Line at Corning, Pt. 2, S.H. FASH 57-11; Corning-Painted Post, S.H. 5026; Corning City-West City Line, Chestnut St., S.H. FAC 57-5 Project No. U-225(18); U-593(14)	3.76	Traffic Signs and Delineators	$2,600 Plans $5	48,000
Steuben Rte. 21	FARC 60-109	Hornell-Wayland, Pt. 2, S.H. 9029 Hornell-Wayland, Pt. 3, S.H. 8194 Project F-375(9)	1.30	Asphalt Concrete	$22,000 Plans $5	389,000
DISTRICT No. 7, Robert W. Sweet, District Engineer, 444 Van Duzee Street, Watertown, New York						
St. Lawrence, U.S. Granville, Ont., Can.	O.B.A. 60-7	Ogdensburg Bridge Canadian and U.S. Approaches	2.40	Traffic Signs	$600 Plans $5	11,000
DISTRICT No. 8, Kurt G. Rauer, District Engineer, Pleasant Valley Rd., Poughkeepsie, New York						
Columbia	T.S.P. 60-2	Taconic State Parkway (Rte. 203-N.Y.S. Thruway. Berkshire Sec.) Town Road (Chatham-Red Rock); County Road No. 24; Town Road (Hartigans Road); Chatham-East Chatham, S.H. 1933; Town Road (Chatham Center-East Chatham)	4.26 (5.25 Acc.)	Grad. & Drain.=6.52 Mi.; Asph. Conc.=0.64 Mi.; Top Crse. Graded Gravel=2.35 Mi.; 3 H.G.S. & 1 R.R. Bridge Comp. I-Beam, 3 SP. 187.4'; 3 SP. 119'; 4 SP. 264.5'; 3 SP. 245'	$150,000 Plans $10	2,780,000
Dutchess Rtes. 22 & 55	FARC 60-110	Billings-Poughquag, S.H. 8525; Stonehouse-Stormville, S.H. 1162; Stonehouse-Pawling, S.H. 1677; Pawling-Patterson, S.H. 343; Pawling Village, S.H. 5009 Project No. F-1028(3); F-627(5); and F-FG-625(5); F-350(23)	(0.57 Acc.)	Asph. Conc.=7.63 Mi.; Cem. Conc. Pavt.=1.17 Mi.; ridge-Reinf. Conc. Box 20.8' Span; RRGS-NYCRR-Prestressed Beam—3 Spans 139.4'; HGS Comp I-Beam—4 Spans—200.2'	$230,000 Plans $5	4,149,000
Orange & Rockland	PIP 60-1	Palisades Interstate Parkway (New Jersey State Line to Bear Mountain Bridge Circle)	25.94	Roadside Development Including 1.41 Mi. Asph. Concrete Pavement	$28,000 Plans $5	507,000
Ulster Rte. 9W	FARC 60-108	Saugerties Village, S.H. 5601 Saugerties-Kingston, S.H. 228 Project No. S-207(2); F-361(7)	2.37	Asphalt Concrete	$12,000 Plans $5	210,000
Westchester Rte. 9	FARC 60-39	Croton-on-Hudson Vill: Riverside Ave.; S.H. 1207; Croton River-Peekskill, S.H. 657 Project No. U-358(11)	2.74	Demolition of Bldgs.	$11,000 Plans $5	206,000
DISTRICT No. 9, Joseph C. Frederick, District Engineer, 71 Frederick Street, Binghamton, New York						
Broome Rtes. 17 & 41	FARC 60-121	Windsor-Deposit, S.H. 5338 Bettsburg-McClure, Pt. 2, S.H. 8285 Project No. F-344(27)	8.42 (2.98 Acc.)	9" Cem. Conc. Pavt. 2 @ 24' Var.=8.26 Mi.; Bit. D.S. Treat. Pavt.=3.09 Mi.; 2 Brs. Comp. I-Beam; 2 Sp. 125.8'; 2 Sp. 125.8' 5 H.G.S. Comp. I-Beam, 3 Sp., 136.9', 3 Sp. 134.3', 5 Sp. 356.6', 5 Sp. 356.2'; 4 Sp. 239.9'	$475,000 Plans $10	8,482,000
Delaware Rte. 206	FATS 60-12	Walton-Downsville, Pt. 1, S.H. 8515 Walton-Downsville, Pt. 2, FASSH 48-18 Project No. S-44(7)	6.77	Traffic Signs	$220 Plans $5	4,000
DISTRICT No. 10, Austin M. Sarr, District Engineer, 325 W. Main Street, Babylon, L. I., New York						
Richmond Int. Tr. Rte. 278	FICLE 60-1	Clove Lakes Expressway, Cont. 1 Interstate Rte. Conn. 512 (Goethals Br. Approach to Victory Boulevard) Project No. I-278-1(49)	2.38 (10.12 Acc.)	9" Cem. Conc. Pavt. with Carb. Black 2 @ 24' & 36' Var. Wide=2.10 Mi.; Misc. Work=0.28 Mi.; Acc. Rds. Cem. Conc. Pavt.=4.86 Mi.; Asph. Conc. Pavt.=5.26 Mi.; Incl. 2 RRGS Pl. Girds. 50.5', 49.9'; 9 H.G.S. 7 Rolled Girder, 3 Sp. 133'; 4 Sp. 269.3'; 4 Sp. 285.4'; Twin, 3 Sp. 143.5'; Twin, 3 Sp. 101.6'; Twin, 4 Sp. 199.8'; 4 Sp. 190.9'; 2 Pl. Gird., 1 Sp. 114.9', 1 Sp. 100.9'	$800,000 Plans $10	14,295,000
Suffolk	HSP 60-1	Heckscher State Parkway Cont. 2 (Southern State Parkway to Sunrise Highway)	5.44 (13.94 Acc.)	Grading & Drainage=7.61 Mi.; Asph. Conc.=11.77 Mi.; 5 H.G.S. Rein. Conc. Rig. Fr., 2 Sp. 126.4'; 2 Sp. 145.78'; 2 Sp. 121.78'; 2 Sp. 148.82'; 2 Sp. 120.58'; 2 H.G.S. Comp. Gird. 2 Sp. 140.94'; 2 Sp. 153.98'	$305,000 Plans $10	5,555,00

(Continued on following page)

OFFICIAL PROPOSALS

(Continued from preceding page)

Any projects in this letting that are on the Federal Aid highway systems are subject to the provisions of the "Federal-Aid Highway Act of 1956", being Public Law 627, 84th Congress, approved June 29, 1956, and are also subject to the applicable New York State statutes.

In compliance with the provisions of Section 115 (Prevailing Rate of Wage), Public Law 627, the minimum wages to be paid laborers and mechanics are included in wage schedules that are set out in the bid proposal.

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "Information for Bidders" in the Public Works Specifications, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as Amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bond shall conform to the provisions of the Highway Laws, as set forth in "Information for Bidders".

The right is reserved to reject any or all bids.

J. BURCH McMORRAN
SUPT. OF PUBLIC WORKS

Bids: July 28, 1960

Low Pressure Steam Generating Plant Building No. 81

THE PORT OF NEW YORK AUTHORITY
LA GUARDIA AIRPORT
CONTRACT O & M 600

Sealed proposals for installing of a low pressure steam generating plant will be received at the office of the Department of Purchase and Administrative Services of The Port of New York Authority, Room 900, 111 Eighth Avenue, New York 11, New York, until 11:00 A.M., Thursday, July 28, 1960, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Department of Purchase and Administrative Services, Room 900, and copies will be furnished upon deposit of $10.00 per set. Deposit must be delivered to Treasury Department, Room 1001, where a receipt will be issued. The receipt is then to be delivered to the Department of Purchase and Administrative Services, which will furnish the contract documents. The deposit will be remitted if the documents are returned in good condition, not later than thirty days after the opening of proposals. The deposit will be forfeited if the documents are not returned within thirty days.

THE PORT OF NEW YORK AUTHORITY
S. Sloan Colt, Chairman

New York, July 14, 1960

Bids: August 15, 1960

Electric Distribution System

Manufacturers and suppliers wishing to participate in bidding on the supply of approximately $4,500,000 worth of municipal electric distribution system materials and equipment such as wood poles, electrical conductors, insulators, transformers, watthour meters, hardware and related accessories, for delivery at the port of Khorramshahr, Iran, are requested to submit particulars as to their qualifications and complete technical information, including catalogs and specifications covering the materials they would be prepared to supply, to Khuzestan Development Service, Attn: Supply Officer, P. O. Box 14, Ahwaz, Iran.

OFFICIAL PROPOSALS

Qualification statements and supporting materials will be received up to August 15, 1960. The manufacturers and suppliers invited to bid will be selected from the firms qualified under the above procedure.

Bids: August 31, 1960

Tender for the Supply and Construction of the Rumaila Basrah Natural Gas Pipeline

REPUBLIC OF IRAQ,
MINISTRY OF INDUSTRY
D.G. Industrial Design & Construction.

Tenders are invited from constituted qualified Engineering Companies with experience in pipeline construction of similar magnitude, by the Ministry of Industry for the supply and erection of a buried natural gas pipeline from Basrah Petroleum Company's plant at Rumaila to the Basra Power Station at Nijibiyah and a proposed fertilizer project at Abul Flus.

The scheme will incorporate a deydration plant, odourising plant and metering stations which will be in accordance with the General Conditions, Specification and Schedules which can be obtained from the Ministry of Industry, Directorate of Legal Affairs Baghdad, the Consulting Engineers, Messrs. Embank and Partners Limited, 10/11 Grosvenor Place, London, S.W.1., England from nearest Embassy of Legation of the Republic of Iraq.

On the respective payment of the sum of ID. 25/—for each set of documents.

Tenders should be submitted in a sealed envelope directly addressed to the Republic of Iraq, Ministry of Industry, Directorate of Legal Affairs and clearly marked "Tender for Rumaila Basrah natural Gas Pipeline".

Closing date of Tender 31st. August 1960.

The Tenders are also available at the Embassy of Iraq, 2135 Wyoming Ave. N.W., Washington, D.C., upon payment of $70.00, Non-Refundable.

Minister of Industry.

T.22.6.60.

Bids: See Advertisement.

The Port of New York Authority

Sealed proposals for the following work will be received at the Office of the Chief Engineer, Room 1100, 111 Eighth Avenue, New York 11, N.Y., until 2:30 P.M. on date indicated, at which time said proposals will be opened and read in Room 1108.

Contract BP-210.002—Brooklyn-Port Authority Piers—Pier 8 Structural Steel—Deposit $30.00 per set of documents—Bids will be received until 2:30 P.M. on Tuesday, August 9, 1960.

Contract PN-630.002—Port Newark—Berths 61 & 63—Upland Area—Paving, Utilities & Railroad Track—Deposit $30.00 per set of documents—Bids will be received until 2:30 P.M. on Tuesday, August 2, 1960.

Contract PN-630.001—Port Newark—Berths 34, 36 & 65—Wharf Construction—Deposit $30.00 per set of documents—Bids will be received until 2:30 P.M. on Tuesday, August 9, 1960.

Contract EBP-120.001—Erie-Basin-Port Authority Piers—Pump Station & Water Mains—Deposit $30.00 per set of documents—Bids will be received until 2:30 P.M. on Tuesday, August 9, 1960.

Contract documents may be seen at the Office of the Assistant Chief Engineer for Design, Room 1115, 111 Eighth Avenue, New York 11, N.Y. Documents will be furnished upon receipt of the above deposit (each set including one copy of the Contract Drawings) for not more than three sets to any one company. Additional sets will be furnished upon payment of an amount for each set equal to the deposit indicated above, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt will be issued. The receipt shall be delivered to Room 1115, where the documents will be furnished.

Those who have submitted a bid on the contract directly to the Authority will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
S. Sloan Colt, Chairman

New York, July 14, 1960

OFFICIAL PROPOSAL

RATE: $2.40 per line (or fraction) per insertion.

CLOSING DATE: 10:30 a.m. Friday for issue out following Thursday.

SEND COPY: Official Proposal Division, Engineering News-Record, P. O. Box. 12, New York 36, N. Y.

OFFICIAL PROPOSALS

U. S. Government

Sealed bids for construction of Old Age and Survivors Insurance Annex Building, Baltimore, Maryland, will be received until 2:00 PM, EDT August 3, 1960, in Rm. 7122, GSA Regional Office Building, 7th & D Sts., S.W., Washington 25, D. C., and then publicly opened in Rm. 7122 at the above address. Upon request, Public Buildings Services, Rm. 1308, GSA Bldg., 19th & F Sts., N. W., Washington 25, D. C., Phone EXecutive 3-4900, Ext. 2397, will furnish three sets of bidding material to General Contractors interested in bidding the complete project. Three additional sets may be obtained by depositing $75.00 per set. One set of drawings and specifications will be supplied to each principal subcontractor, as determined by the Service, upon receipt of deposit in the amount of $75.00. Deposits will be refunded for such sets if returned in good condition within twenty days after bids are opened. Checks or money orders for deposits or furnished as bid guaranty must be made payable to the General Services Administration. One set of drawings and specifications will be furnished to builder's exchanges, chambers of commerce and other similar organizations, with the understanding that the set will be retained on their premises and made available for inspection by any interested subcontractor or material firm. Commissioner of Public Buildings, General Services Administration.

Sealed bids for construction of Federal Office Building No. 9 (C.S.C.), Washington, D. C., will be received until 2:00 PM., EDT, August 17, 1960, in Rm. 7122, GSA Regional Office Building, 7th & D Sts., S. W., Washington 25, D. C., and then publicly opened in Rm. 7122 at the above address. Upon request, Public Buildings Services, Rm. 1308, GSA Bldg., 19th & F Sts., N. W., Washington 25, D. C., Phone EXecutive 3-4900, Ext. 2397, will furnish three sets of bidding material to General Contractors interested in bidding the complete project. Three additional sets may be obtained by depositing $75.00 per set. One set of drawings and specifications will be supplied to each principal subcontractor, as determined by the Service, upon receipt of deposit in the amount of $75.00. Deposits will be refunded for such sets if returned in good condition within twenty days after bids are opened. Checks or money orders for deposits or furnished as bid guaranty must be made payable to the General Services Administration. One set of drawings and specifications will be furnished to builder's exchanges, chambers of commerce and other similar organizations, with the understanding that the set will be retained on their premises and made available for inspection by any interested subcontractor or material firm. Commissioner of Public Buildings, General Services Administration.

District of Columbia—Building Construction—Dept. of Buildings & Grounds, D. C., June 29, 1960. CONSTRUCTION OF ADDITION TO WHITTIER ELEMENTARY SCHOOL, 4th and Sheridan Sts. N.W., Wash., D. C. (Invitation No. C-6112-B). Bid forms, plans and specifications are now available from Supervisor, Bid & Contract Division, Procurement Office, D. C., Room 404, 499 Pa. Ave., N.W., upon deposit of a certified check for $50.00 per set, payable to D. C. Treasurer (Phone NA 8-6000, Ext. 2378). SEALED BIDS to be opened 2:00 PM, EDT, July 27, 1960, in Rm. 424, 499 Pa. Ave., N.W.

READ THE OFFICIAL PROPOSAL COLUMN OF
ENGINEERING NEWS-RECORD
THIS WEEK AND EVERY WEEK

EMPLOYMENT NATIONAL COVERAGE OPPORTUNITIES

DISPLAYED RATE:

The advertising rate is $39.20 per inch for all advertising appearing on other than a contract basis. Frequency rates quoted on request.

An advertising inch is measured 7/8" vertically on a column—3 columns—30 inches to a page.

Subject to Agency Commission.

JULY 28TH ISSUE CLOSES JULY 18TH

UNDISPLAYED RATE:

$2.40 per line, minimum 3 lines. To figure advance payment count 5 average words as a line.

Position Wanted ads take ½ of above rate.

Box numbers—count as 1 line.

Discount of 10% if full payment is made in advance for 4 consecutive insertions.

Not subject to agency Commission.

Send NEW Ads and Inquiries to Classified Advertising Division or ENGINEERING NEWS-RECORD, P. O. Box 12, N. Y. 36.

ADDRESS BOX NO. REPLIES TO: Box No. Classified Adv. Div. of this publication. Send to office nearest you.
NEW YORK 36: P. O. Box 12
CHICAGO 11: 520 N. Michigan Ave.
SAN FRANCISCO 4: 68 Post St.

• POSITIONS VACANT

Assistant or Associate Professor of Civil Engineering to teach prestressed concrete, reinforced concrete and soil mechanics. Applicant must have MS degree and some experience. Salary open. Contact John A. Oakey, N. D. State College, Fargo, N. D.

Engineers experienced in water and sewage works projects or related fields. Opportunity for permanent connection with long established consulting firm. Please state full qualifications, experience, references and salary requirements. Location Ohio. P-4697, Engineering News-Record.

Sales Engineer—Engineering and sales experience required. Leading Manufacturer of steel forms for prestress and precast concrete. Territory—N. E. United States. Good salary, with future. Resume in complete confidence. P-4744, Engineering News-Record.

Foreman and Superintendent for Highway and Airfield construction. Work is located in Kentucky, Alabama and Mississippi. Send complete resume and date available. P-4764, Engineering News-Record.

Civil Engineer—A leading upstate New York public employer offers a challenging opportunity to assist in a professional program involving personnel selection for positions in the field of engineering. We are looking for a man with a bachelor's degree in civil engineering, a P.E. license issued by New York State or an equivalent license issued by another state and who, in addition, has at least three years of engineering experience, or teaching engineering subjects in a recognized college, or an equivalent of the above. Beginning salary for this five-day, 37½ hour-week is $7800 plus, with guaranteed increases each year. In addition, there are many fringe benefits. We are anxious to fill this vacancy as soon as possible. If time and circumstances permit, candidates may be granted personal interviews in New York City, Boston, Albany, N. Y. or other upstate New York cities. All qualified applicants are invited to send a detailed resume to Dept. A, P.O. Box 1624, Albany, N. Y.

Teaching and Research Assistantships are available to qualified students while working for M. S. or PH.D. degree in either solid or fluid mechanics. Write, Chairman, Dept. of Engineering Mechanics, University of Kansas, Lawrence, Kansas.

Flood Control Engineer: A registered professional engineer between age of 30 to 45 years with experience in hydrology and hydraulics. Starting salary $10,000.00 per year with car furnished. Applicant should have ability to take over complete charge of office. Apply with complete resume of experience and qualifications to Board of Flood Control Commissioners, City Hall, Indianapolis 4, Indiana.

County Engineer Wanted: Require registered engineer with highway experience. For more information contact Guthrie County Board of Supervisors, Guthrie Center, Iowa.

Assistant City Engineer—Age, under 50— Civil Engineer—College Degree—two (2) years' experience. Knowledge of street and sewer design and other Municipal functions. Knowledge of operation of Sewage Treatment Plant and Filtration Plant desirable. Write City Clerk, City Hall, Cumberland, Maryland.

POSITIONS VACANT

Construction Estimator-Progressive and expanding regional General Contractor with offices in Baltimore has outstanding opportunity for competent estimator. Reply with complete resume. P-4799, Engineering News-Record.

Civil Engineer—experienced in hydraulics, hydroelectric, irrigation design and field work. Overseas assignment in Portuguese West Africa. Send full resume and salary requirements to P-4800, Engineering News-Record.

Manager, precast, prestressed concrete products and pipe. Precast supervisory experience required. Small growing concrete products company in Colorado. Affiliated with successful ready-mix concrete and sand and gravel operations. Please send resume and salary requirements to P-4801, Engineering News-Record.

Civil Engineers—Design. We are recruiting for positions at 2 levels. The lower level, starting at $6417 per year, requires college graduation with CE major and 2 years CE experience including 1 year in design. The higher level position, starting at $9242 per year, will be responsible for the work of the Design Staff in the City of Phila's Division of Architecture and Engineering. This position requires a CE grad and 6 years of CE experience including 3 years in design, 2 of which must have been in a responsible supervisory capacity. Equivalent combinations of experience and education will be considered for both levels. We offer regular salary increases, liberal fringe benefits and promotion opportunity. Resumes must be received on or before July 20, 1960 and should be addressed to Miss Alma Goldman, Recruitment Representative, Room 782, City Hall, Phila. 7, Penna.

Construction Superintendent, C. E. Positions open in Pittsburgh, Pa. and Portsmouth, N. H. areas. Must be experienced Public Works building construction. Salary commensurate with ability and experience. Send resume including age, education, experience, references, salary desired. P-4783, Engineering News-Record.

Wanted—Skilled Mechanics. Highway Construction Firm in Southwestern Pennsylvania. Experienced in all types of diesel engines and heavy construction equipment. Send complete resume of experience and qualifications to P-4814, Engineering News-Record.

Position is open as assistant to President of heavy engineering construction firm in the West. Give experience, education, references and salary expected. P-4822, Engineering News-Record.

Field Supervisor. Large established midwest consulting firm has permanent position in building construction supervision for thoroughly qualified and experienced man. Mechanical engineer preferred. Moving expenses paid. Send complete resume to P-4833, Engineering News-Record.

Architect—2 years experience. Growth opportunity—young, rapidly expanding A-E firm. Indeterminate structures. Comm., industrial buildings. Outside Chicago. Send resume, salary requirements to P-4820, Engineering News-Record.

• POSITIONS WANTED

Construction superintendent considerable experience in industrial and commercial work. PW-4494, Engineering News-Record.

Executive 15 yrs exp all phases of the business, field & home office, legal-const background, mgr. atty. admstr. trouble-shooter. PW-4672, Engineering News-Record.

POSITIONS WANTED

Construction Supt. BSCE, Exp. Mgr. Chf. Eng. Hvy. const. Roads flood control tunnels bldgs. govt. contr. Will relocate. Elswirth, 3419 Utah, St. Louis, Mo.

Experienced construction superintendent past retirement age desires subordinate job with construction company. Recently completed year job at salary of $13,000.00 per year. PW-4671, Engineering News-Record.

Construction Manager, age 49, P.E. 30 years all types of construction. At present employed as Project Manager on Housing Project. Previous background Manager, Chief Engineer, General Superintendent, Chief Estimator. Sound experience. Can furnish complete construction organization. Minimum $15,000. PW-4741, Engineering News-Record.

Engineering Executive. Wide industrial, chemical and civil experience; all phases administration and management. Organize and direct large design jobs or work in consulting and exec. asst. capacities. Proposals, reports, contracts, liaison, trouble shooting, P.E. in 5 States. PW-4725, Engineering News-Record.

Construction Mgr.—Field Supt.—Craft Supt. Age 45, 20 yrs. experience major projects Middle & Far East, Europe & Domestic. Petroleum, Steam Generating, Atomic Energy, Pulp, Chemical. Management duties include contract admin., customer & labor relations, planning, purchasing etc. Field duties include all and or Craft Supervision; strong emphasis on piping & instrumentation. Completing European assignment; available approx. 60 days. Overseas only. PW-4680, Engineering News-Record.

Engineer—20 yrs. exp. design/drafting/est. conc. & steel structures, buildings, & fndtns. Will also consider P.T. or free lance N. Y.-N. J. area. PW-4695, Engineering News-Record.

(Continued on opposite page)

"Put Yourself in the Other Fellow's Place"

TO EMPLOYERS

TO EMPLOYEES

Letters written offering Employment or appiying for same are written with the hope of satisfying a current need. An answer, regardless of whether it is favorable or not, is usually expected.

MR. EMPLOYER, won't you remove the mystery about the status of an employee's application by acknowledging all applicants and not just the promising candidates.

MR. EMPLOYEE you, too, can help by acknowledging applications and job offers. This would encourage more companies to answer position wanted ads in this section.

We make this suggestion in a spirit of helpful cooperation between employers and employees.

This section will be the more useful to all as a result of this consideration.

Classified Advertising Division

McGRAW-HILL PUBLISHING CO., INC.
330 West 42nd St., New York 36, N. Y.

• POSITIONS WANTED

(Continued from opposite page)

Manager of Construction. Twenty-five years corporate engineer in charge of profitability analysis, cost estimating, scheduling, construction supervision and cost control for major process industry projects. M.S. Civil Engineering. On-time completions, minimum costs, smooth startups. Reply PW-4710, Engineering News-Record.

Technical executive, young, graduate licensed engineer, fourteen years diverse domestic and overseas experience. Presently affiliated major oil company, refining mid-management position, desires change with advanced opportunity, overseas positions considered. PW-4696, Engineering News-Record.

Superintendent—33 years experience. Commercial & Industrial bldgs—schools—hospitals. Want to relocate. PW-4753, Engineering News-Record.

Ass't. Const. Supt. with mining company desires work with growing construction company west coast. PW-4379, Engineering News-Record.

Electrical Eng. or Supt., Age 38, 15 years experience construction and plant maintenance U.S. & overseas. Excellent references. Available now. Perfect Spanish and German. PW-4781, Engineering News-Record.

Construction Executive age 44 desires change. 5 years experience Industrial Park Development—also Const. Supt., Sales, Estimating, Purchasing, Industrial, Commercial and Schools. PW-4825, Engineering News-Record.

Chief Estimator—Sewage and Water Treatment Plants. Industrial, Commercial, and Architectural Buildings—fifteen years one employer—will relocate to suit. Available immediately. PW-4792, Engineering News-Record.

Registered Architect With Construction Experience here and in Mexico wishes to associate with an American firm to manufacture construction equipment or building materials in Mexico. Will furnish some capital and tools. Will need capital or used tools plus technical assistance. PW-4795, Engineering News-Record.

Hydraulic Dredge Executive Civil Engineer Available. Over 20 years thorough experience in field investigation, cost estimates, management, consulting, full time or project basis. PW-4796, Engineering News-Record.

Construction Superintendent—Wide experience in industrial, institutional, and commercial field as job and general supt. Proven producer. PW-4774, Engineering News-Record.

Experienced blasting foreman with license any type rock immediately available $150.00 weekly—write PW-4776, Engineering News-Record.

Man 46 married Master in Civil Eng. Professional engineer Md. State. 10 years highway, bridges and structural design. Past 2 years instructor (evening). Desire full-time teaching position in highway construction and surveying. Location desired N.Y. to Md. area. PW-4802, Engineering News-Record.

Superintendent-Estimator-Engineer, C.E. P.E. L.S. (NJ) experienced public works, utilities, bridges, paving, desires position general contractor (N.J.) PW-4773, Engineering News-Record.

Highway construction superintendent capable complete charge, 20 years experience excavation, grading, estimating experience. Willing relocate. PW-4771, Engineering News-Record.

I have 8 years experience in Utility, Gas & Fuels Fields from bid-negotiation to completion. Design, Purchasing, Subcontracting, Municipal, Gov't, Industry—Graduate C.E. PW-4791, Engineering News-Record.

Project Engineer, qualified civil and structural engineer in U.K. Single, 18 years experience of Highway, Airfield, and Bridge construction with contractors and Gov't. Depts. in U.K. and overseas. Free in August, currently located in Ethiopia, willing travel Europe or U. S. for interview. Position wanted in U. S., S. America, Africa or Asia. PW-4786, Engineering News-Record.

Professor, civil and eng. merchanics, 22 yrs. teaching, research, design, cand. D. Eng. PW-4780, Engineering News-Record.

Senior Estimator and Project Manager, age 33, available in August. College grad, career minded, good construction background. Desire permanent opportunity with established General Contractor engaged in commercial or heavy industrial activity. Prefer South or S.W. PW-4826, Engineering News-Record.

Experienced Construction Project Eng.- Project mgr.—Age 37—Reg. P. E.—Pulp-Paper & Converting experience—Desire connection with Paper Co. or Contractor. PW-4824, Engineering News-Record.

HIGHWAY ENGINEERS

For Overseas Assignment

PLANNING ENGINEER
CONSTRUCTION ENGINEERS
MAINTENANCE ENGINEERS
PLANS & SPECIFICATIONS ENGINEER
EQUIPMENT ENGINEER
TECHNICAL LIBRARIAN

Highway Engineers with at least ten years responsible experience in one or more of above categories. Ability to assist and train counterparts imperative. Send complete resume, photograph and present salary to

P-4785, Engineering News-Record
Class. Adv. Div., P. O. Box 12, N. Y. 36, N. Y.

ESTIMATOR—FIRE BRICK MASONRY

A well-established Midwestern Fire Brick Masonry Contractor has opening for an Estimator experienced in all phases of firebrick construction on large Industrial Boilers, Incinerators, Rotary Kilns and Industrial Furnaces. Some knowledge of industrial gunite construction desireable, but not essential.

A good position for a conscientious and ambitious man desirous of a secure future. Modern air-conditioned office located in Chicago, serving the Midwestern States. Profit-sharing Retirement Plan.

Free Hospitalization Insurance and Paid Vacation.

Salary commensurate with ability. Write stating experience, education, age and salary requirements to P-4752, Engineering News-Record, 520 N. Michigan Ave., Chicago 11, Ill.

All replies strictly confidential

FIELD ENGINEER

Large southeastern rock processing company with multi-units has responsible position open for experienced engineer with construction superintendent background. Will be part of small capable construction engineering group in expanding profitable operation. Opportunity for future, directly related to your ability and potential. For more information please send details about youself in strict confidence.

P-4676, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

ENGINEERING POSITIONS

Home Office of National Construction Equipment (non-motorized) Organization.

1. Design engineer for interesting product development assignment requiring graduate engineer with several years experience.
2. Mechanical or Civil engineer for varied assignments covering a wide range of activities requiring several years experience. N.Y. P.E. license desirable but not requisite.

Applicants for above positions please furnish full resume and indication of salary required.

P-4811, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

WHEN

Answering Advertisements

PLEASE *do not send original letters, certificates or photographs. We cannot be responsible for their return. Please send photostat or carbron copies.*

WANTED

ENGINEERING ASSOCIATES

SANITATION WATER SUPPLY
(foreign & domestic)
PETROLEUM (foreign)
GEOLOGICAL & MINING (foreign)
CHEMICAL & PETRO-CHEMICAL
(foreign and domestic)
WATER RESOURCES (foreign)
HYDRO-ELECTRIC (domestic & foreign)
CONSTRUCTION (domestic & foreign)
President and Vice-President levels.
Complete charge of your own division.
Drawing account against substantial share of Division profits before tax PLUS income from own secured investment.
Minimum Investment $25,000.00
GLOBAL Activity—TOP Recognition

Send complete resume including photo to:

P. O. Box 968,
Station "B", Montreal, Quebec

Structural Engineer

With minimum of 10 years experience, to be in charge of structural and architectural design for multi-building process and industrial projects. Must be able to design, coordinate, and supervise these requirements in consulting engineers' office. Location, Boston. Send complete details of education and experience, together with references.

P-4754, Engineering News-Record
Class. Adv. Div. P.O. Box 12, N.Y. 36, N.Y.

Sanitary Engineer

Capable of responsible charge of investigations, reports, and design for large Water and Sewer Projects. Age 35 to 50. Position outside of United States. Family to accompany you.

P-4742, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

FOR LOS ANGELES, CALIF.

CONSTRUCTION ENGINEER

or superintendent, qualified to take charge of all field operations; must have thorough experience in all phases of estimating, layout, job construction for concrete slab and formwork requiring shoring (we employ Acro post, rigid and expandable frame shoring)
Join a progressive corporation as active executive; capital investment required. Present sales volume $750,000.00 annually. Reply in detail first letter, stating minimum salary required, complete background and references.

P-4745, Engineering News-Record
1125 W. 6th St., Los Angeles 17, Calif.

1) Brand new S-18 Euclid, 21 cu. yd., scraper, latest type with 27:00X33-24 ply tubeless tires, factory price $57,385. Our dealer net cost, F.O.B. Chicago, $47,650

1) Brand new Model 1UD-R10 Euclid rear dump truck with standard 70BY quarry body, two yard top extensions, heater, defroster, hood sides, price F.O.B. factory $22,933. Dealer cost F.O.B. Chicago, $18,405

We have been the Euclid dealers in Chicago and have just cancelled our Euclid franchise and have these two new machines left in stock, which we are offering at dealer's cost, F.O.B. Chicago, Illinois

We also have the following rebuilt equipment in stock, available for immediate sale:

5) Euclid 13 yd. bottom dumps

4) Euclid 6 wheeler 14TDT rubber tired 15.5 cu.yd. scrapers

3) Rebuilt TS-24 Euclid twin engine rubber tired scrapers

1) Mod. TC-12 Euclid crawler tractor with dozer, used 5 months, rebuilt

1) Mod. TC-12 Euclid twin engine crawler tractor with pushblade, rebuilt

2) Rebuilt TS-24 Euclid twin engine, rubber tired scrapers, used five months, located in Memphis.

GIL BOERS EQUIPMENT COMPANY
7625 SO. KEDZIE AVENUE,
CHICAGO 52, ILL.
PROSPECT 6-4000

FOR SALE OR LEASE
70 All Steel
TWIN HOPPER CARS
60 Ton Capacity
Fully Repaired
Immediate Shipment
'Phone — Wire — Write
HYMAN-MICHAELS COMPANY
108 N. State Street Chicago 2, Ill.
'Phone: DEarborn 5-5422

High Speed in 6x6's
NEW ISSUE TRUCKS
GMC! MACK! REO "Eager Beaver!"
• *Tandem Axle* • *Front Wheel Drive*
For specifications, prices, delivery, write
MEMPHIS EQUIPMENT COMPANY
P.O. Box 2852, Dept. E., Memphis, Tenn.
NATION'S LARGEST ARMY TRUCK DEALER!

SURVEYING INSTRUMENTS

TRANSITS & LEVELS
Various Makes
NEW & REBUILT
Fully equipped modern shops — all makes and models repaired — all work guaranteed — prompt service — complete line field supplies.
INSTRUMENTS RENTED
Midwest Distributors for W. & L. E. Gurley and Wild Heerbrugg Instruments
NATIONAL BLUE PRINT CO.
Established 1914
210 S. Canal St. Chicago (6), Ill.

SELECT
Contractor Associate
wanted by
RESPONSIBLE
International Engineering
Company
with
GLOBAL ACTIVITIES
Min. investment
$100,000.
Fully secured by
Real and Tangible Assets
Wire or phone
Norman S. Brooke, *Vice-Pres.*
GUARDIAN TRUST COMPANY
Montreal — Canada
Victor 2-8251

FOR SALE
OLD ESTABLISHED LARGE HEAVY
CONSTRUCTION COMPANY
PITTSBURGH DISTRICT
EXCELLENT CLIENTELE
CASH REQUIRED $1,000,000
PRINCIPALS ONLY
BO-4747, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

USED BARGES
FOR SALE
Open Hopper Type
10 Barges—300'x48'x11'
3 Barges—280'x48'x11'
House Type—Steel Rolling Covers
8 Barges—230'x45'x11'
Address Inquiries to Marine Dept.
FEDERAL BARGE LINES
611 E. Marceau St. St. Louis 11, Mo.
VErnon 2-4000

1½ YD. NORTHWEST SHOVEL
FOR SALE—Model 6 Northwest Shovel s/n 8840 with Murphy Diesel Engine ME-6 #12895A. Machine in Good Condition. Located Harrisonburg, Virgina. Will Finance to Responsible Party. $25,000.00
EUCLID-TENNESSEE, INC.
Box 1176, Nashville, Tennessee
or
WRIGHT CONTRACTING COMPANY
Columbus, Georgia

U. S. Army Telephones EE-8 fully reconditioned. Suitable for intercommunication between 2 or more points. $35.00 for 2 telephones, including 100 ft. of wire and batteries. Additional wire 1¢ per ft. or $25.00 per mile. Write for free list on telephones. All shipments F.O.B. Simpson, Pa.
TELEPHONE ENGINEERING CO.
Dept. ENR-80 Simpson, Pa.

ADDRESS BOX NO. REPLIES TO: Box No. Classified Adv. Div. of this publication. Send to office nearest you.
NEW YORK 36: P. O. Box 12
CHICAGO 11: 520 N. Michigan Ave.
SAN FRANCISCO 4: 68 Post St.

BUSINESS OPPORTUNITIES

Opportunity to purchase profitable, well established engineering-surveying firm in S. E. Florida. Excellent staff and well equipped. Prospective purchaser shall be financially responsible. BO-4748, Engineering News-Record.

General contracting corporation with $100,000.00 loss for tax credit available. Write contractors P. O. Box 5108, Richmond, Virginia.

STRUCTURAL ENGINEERING
ARCHITECTURAL ENGINEERING
OUR COURSES of instruction by mail HAVE HELPED THOUSANDS to better positions and to pass State Board Examinations. Forty-eighth year
WILSON *Engineering Corp.*
College House Offices HARVARD SQ. CAMBRIDGE, MASS.

CONSTRUCTION SUPERVISION
Exclusive Training Course by mail for top positions. Publishers Manual of Advanced Construction Management. Send postcard for details.
National Schools of Construction
Est. 1952
Satsuma, Florida

FOR RENT
MODEL 955 P&H CRANE
Magnetorque controls. Just overhauled with new motor. Carries 2½ yard bucket with 100 ft. boom.
SAGINAW ROCK PRODUCTS COMPANY
SAGINAW, MICH.

FOR SALE:
2 MODEL 25
NORTHWEST BACKHOES
With Murphy Diesel Engines
EXCELLENT CONDITION
Both F.O.B. South Brunswick, N. J.
SERIAL #19137 $17,500
SERIAL #16017 $14,500
KENDALL BUILDERS, INC.
10 Allston Road Franklin Park, N. J.
DAvis 9-6955

FOR SALE
Used in Good Condition
Telescopic 6'x6' Arch Tunnel Forms 16 sections—5' long including Portable track, 20' traveler. concrete buckets, etc.
PRICE: $3,000 F. O. B. Portville, New York
BENSON-STEAD CO.
P. O. Box Portville, N. Y.

---

2 SEA WATER DISTILLATION PLANTS
With 1 yrs. Supply of Spare Parts
1—500 Ton Capacity per day.
1—270 Ton Capacity per day.
Only operated for 1 year.
Original value $800,000.
To be sold at approx. 60% cost.
FS-4798, Engineering News Record
Class. Adv. Div., P.O. Box 12, N. Y. 36, N. Y.

For Sale: DRAGLINES—SHOVELS—CRANES
All makes and models, ½ yd. to 35 yd.
EUCLIDS: Rear, Bottom Dumps and Scrapers
Other equipment available not listed above
William Lubrecht, III Construction Equipment
311 W. Diamond Avenue, Hazleton, Pa.
Gladstone 5-4041 5-0253

FOR SALE

Excellent Condition

Model MC-424 Lorain Truck Crane

on Standard 6 x 4 Moto-Crane Carrier

Located West Coast

FRAZIER-DAVIS CONSTRUCTION COMPANY
1319 MACKLIND AVENUE
St. Louis 10, Missouri
STerling 1-1950

NEW FLOATING CRANE

FOR SALE

50 Tons Cap. @ 40' Radius 100' Boom
4 drum Hoist Oil Fired Boiler

Havre de Grace Shipyard, Inc.
Havre de Grace, Md.

PIPE

Surplus New & Used

FOR SALE, WANTED OR RENT

Call: HYACINTH 7-4900

PIPE, VALVES & FITTINGS

PILING • CULVERTS
ASBESTOS-CEMENT PIPE • ALUMINUM PIPE

ALBERT PIPE SUPPLY CO., Inc.
103 VARICK AVE., BROOKLYN 37, N.Y.

DAVIDSON

PIPE SUPPLY CO. INC.
Seamless and Welded Steel Pipe
Fittings, Valves, Pipe Fabricating
Call GEdney 9-4300
50th St. & 2nd Ave., B'klyn 32, N. Y.

ASSOCIATED PIPE & FITTING CO., INC.

PILING PIPE SHELLS MANDREL FITTINGS	"H" BEARING PILE SLEEVES AND SHOES	K & M ASBESTOS CEMENT PIPE	CULVERTS CIRCLE ARCH SECTIONAL

262 RUTHERFORD BLVD., CLIFTON, N.J. • PR 3-8400

PIPE USED

10,000 ft.—2" Galvanized T&C 27¢ per ft.
125 tons—2" Structural 3.85# per ft. $92.50 per ton
1,600 ft.—8" Torched Ends 24# $1.35 per ft.

F. O. B. Portville, N. Y.

BENSON-STEAD CO.
P. O. Box Portville, N. Y.

RAILS-TIES

TRACK ACCESSORIES

RAILS

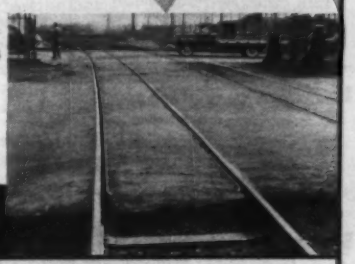
MIDWEST STEEL CORP.
502 DRYDEN STREET
CHARLESTON, W.VA.

You SAVE ALL WAYS with

"Guardmaster"

RAILWAY FLANGEWAY CROSSING GUARD

- Costs less to install
- Reduces Maintenance Costs
- Makes a smooth paved area over railroad tracks.
- Lasts longer.
- Designed for all Rail Sections New or Used.
- Use with concrete, asphalt or planking.



For literature and new developments write to

KASLE STEEL & ALUMINUM CO.
P. O. Box 536, Detroit 32, Mich. Tiffany 6-4200

NEW & USED RAIL—STANDARD & SPECIAL TRACKWORK—
MINING & TUNNEL TRACKWORK—TUNNEL BOXES

PILE DRIVING EQUIPMENT

VULCAN AND McKIERNAN-TERRY
Steam Pile Hammers and Extractors

- DROP HAMMERS
- DRIVING CAPS
- HOISTS AND BOILERS
- STEEL LEADS
- PILE DRIVER HOSE
- STEEL SHEET PILING

CONMACO, INC.

DRexel 1-3930
820A KANSAS AVE.,
KANSAS CITY, KANS.

PILING

SURPLUS NEW and USED For Sale, Wanted or Rent

H & SHEET STEEL PILING

3700 PCS. BETH. SP6A. 50' 50' & 48' & 40' & 35'
4000 PCS. MPI12—20', 30', 35', 50' & 60'
2800 PCS. BETH.—AP3 20', 25', 30', 35', & 60'
2500 PCS. BETH.—DP2—31', 35', 40', 50', 60'
1200 PCS. ZP38-ZP32—25', 30', 50', 60' & 65'
1400 PCS. BP8, BP10, BP12—BP14—55' to 90'
600 PCS. BETH. ZP27—25', 30', 50' & 60'
500 PCS. 15' Corrugated Piling

PILING BOUGHT—SOLD—RENTED
STOCKS: N. Y.—BOSTON—BUFFALO
TORONTO—BALTIMORE—JACKSONVILLE
MIAMI—RICHMOND—NEW ORLEANS

DIESEL LOCOMOTIVES & CRANES
12—Gen. Elec. 100, 80, 65, 45, 25 & 23 ton
25 Ton Industrial Loco Crane, 60' Boom

20 TON STIFF LEG DERRICK
1—AH&D. 40' Mast. 90' Boom, 16' BW

R. C. STANHOPE, INC.
60 E. 42nd St. N. Y. 17, N. Y.
Telephones MU 2-3075 or MU 2-1898

1500—H BEARING PILES

8" 36 lb. 10" 42 lb. 12" 53 lb. 14" 73 lb.
Stocks: Buffalo—Baltimore—N. Y., N. Y.
Albany, N. Y. & Jacksonville, Fla.

R. C. STANHOPE, INC.
Tel. MU 2-3076 or 2-1898
60 E 42nd St. N. Y. 17, N. Y.

NORTH—SOUTH, EAST or WEST

PILE DRIVING EQUIPMENT AT YOUR FINGER TIPS

MISSISSIPPI VALLEY EQUIPMENT CO.
1908 Railway Exchange Bldg.
St. Louis 1, Mo. CHestnut 1-4474

PROFESSIONAL SERVICES

MIDDLE ATLANTIC

Howard, Needles, Tammen & Bergendoff
Consulting Engineers
Bridges, Structures, Foundations, Express Highways
Administrative Services
Kansas City - Cleveland - New York

E. Lionel Pavlo
Consulting Engineer
Design, Supervision, Reports
Bridges, Highways, Expressways
Marine Structures, Public Works
Industrial Construction, Airports
642 Fifth Ave. New York 19, N. Y.

Lawrence S. Waterbury
Consulting Engineer
Bowling Green 9-9298
26 Broadway New York 4

Steinman, Boynton, Gronquist & London
Consulting Engineers
HIGHWAYS - BRIDGES - STRUCTURES
117 Liberty St., New York 6, N. Y.

THE CONSULTING ENGINEER
By reason of special training, wide experience and tested ability, coupled with professional integrity, the consulting engineer brings to his client detached engineering and economic advice that rises above local limitations and encompasses the availability of all modern developments in the fields where he practices as an expert.

Severud-Elstad-Krueger-Associates
Consulting Engineers
Structural Design - Supervision
Reports - Buildings - Airports
Special Structures
415 Lexington Ave., New York 17, N.Y.

Lockwood, Kessler & Bartlett, Inc.
Consulting Engineers
Civil Engineering Investigations and Reports, Design and Construction Supervision of Bridges, Highways, Pipelines, Expressways, Industrial Buildings, Sewerage, Airports and Municipal Improvements, General Site Engineering, Seismic Subsurface Investigation, Cadastral, Geodetic & Topographic Surveys, Photogrammetric Engineering & Mapping.
One Aerial Way, Syosset, New York
Bogota, Colombia San Juan, P. R.

Modjeski and Masters
Consulting Engineers
Bridges and other Structures
Foundations
Highway and Expressways
900 North Sixth St. Harrisburg, Pa.
Philadelphia - Miami - New Orleans

The Kuljian Corporation
Engineers • Constructors
WE DESIGN AND CONSTRUCT
Power Plants • Public Works • Processing Plants • Oil Refineries • Chemical Plants • Textile Plants • Airport Facilities • Military Installation
1200 N. Broad St., Philadelphia 21, Pa.

Michael Baker, Jr., Inc.
Consulting Engineers, Civil Engineers, Planners & Surveyors; Airports & Highway Design; Water Works & Sewerage Design & Operation; Aerial Topo Maps; Surveys; Reports & Investigations; Irrigation. Home Off.—Rochester, Pa. Br. Off.; Jackson, Miss.; Harrisburg, Pa.; College Park, Md.

Buchart Engineering Corp.
Consulting Engineers
Highways — Bridges — Sewer Systems
Surveys — Water Works — Dams —
Reports — Supervision — Industrial
Municipal — City Planning — Structures
55 S. Richland Ave., York, Pa.
Lancaster, Pa. Washington, D. C.

SOUTH

Rader and Associates
Engineers - Architects
Sewage Disposal, Water Works, Ports, Airports, Bridges, Highways, Office and Commercial Buildings, Industrial Plants, Reports, Investigations, Consultations, Aerial Photography, Photogrammetry.
First Nat'l Bank Bldg., Miami 32, Fla.

MIDDLE WEST

Consoer, Townsend & Associates
Consulting Engineers
Sewage treatment, sewers, storm drainage, flood control—Water supply and treatment—Highway and bridges—Airports—Urban renewal—Electric and gas transmission lines—Rate studies, surveys and valuations—Industrial and institutional buildings.
360 East Grand Ave. Chicago 11, Ill.

Roy B. Everson
S.E. Consultant Since 1900
For Purification Systems as applied to Sewage Treatment, Water Works and Swimming Pool Circulating Systems.
A New System for Automatic Control
211 W. Huron St. Chicago 10, Ill.
Phone SUperior 7-3339

Sargent & Lundy
ENGINEERS
Consultants to the Power Industry
Studies • Design • Supervision
140 South Dearborn Street,
Chicago 3, Ill.

Toledo Testing Laboratory
Engineers—Chemists
Concrete—Soils—Asphalt
Inspection Research
Tests Development
Foundation Investigation
Borings — Diamond Drilling — Load Tests
Soils Mechanics Laboratory
1810 North 12th St. Toledo 2, Ohio

AERIAL SURVEYS

Aerial Map Service Co.
Topographic, Planimetric, Photo Maps for Highways, Mining, Resources, Construction, City Maps, Tax Maps, Photo Geology, Tellurometer Radio Distance Measurements. Triangulation, Electronic Computation.
1016 Madison Ave., Pittsburgh 12, Pa.

American Air Surveys, Inc.
AERIAL TOPOGRAPHIC MAPS & AERIAL PHOTOS FOR
• Highways • Airports • Power & Pipe Lines • Railroads • Mining • All types construction • Stockpile Inventories
907 Penn Ave. Pittsburgh 22, Pa.
A NATONWIDE SERVICE

GEOLOGISTS

John R Rand Incorporated
Geologic Consulting
Geologic-geophysical investigations for dams, tunnels, highways, light and heavy construction, water supply, earth materials, aggregates, mineral deposits and mineral exploration.
67 State Street Augusta, Maine

CONSULT THESE SPECIALISTS...

When you need professional assistance in solving difficult problems. Their specialized knowledge and broad experience can prove invaluable in saving both time and money for you.

Engineering News-Record invites other consultants to list the special services they offer on these pages.
Rates for the Professional Services section are:

PER WEEK	13 times	26 times	52 times
¾"—$14.35	$13.35	$12.45
1½"—$23.85	$22.30	$21.00

SEARCHLIGHT
Equipment Locating Service

This service is aimed at helping you, the reader of "SEARCHLIGHT", to locate Surplus new and used Engineering and Construction equipment not currently advertised. (This service is for USER-BUYERS only). No charge or obligation.

How to use: Check the dealer ads on pages 142 & 143 to see if what you want is not currently advertised. If not, send us the specifications of the equipment wanted on the coupon below, or on your own company letterhead to:

Searchlight Equipment Locating Service
c/o ENGINEERING NEWS-RECORD
P.O. Box 12, New York 36, New York

Your requirements will be brought promptly to the attention of the equipment dealers advertising in this section. You will receive replies directly from them.

Searchlight Equipment Locating Service
c/o ENGINEERING NEWS-RECORD
P.O. Box 12, New York 36, N. Y.

Please help us locate the following equipment:.....

.....

Name..... Title.....

Company..... Street.....

City..... Zone.... State.....7/14/60

CLASSIFIED ADVERTISERS INDEX

Albert Pipe Supply Company..... 143
Associated Pipe & Fitting Company.. 143
Benson Stead Co.....142, 143
Boers Equipment Co. Gil..... 142
Conmaco, Inc. 143
Davidson Pipe Supply Co. Inc..... 143
Euclid-Tennessee, Inc., or Wright Contracting 142
Federal Barge Lines..... 142
Frazier-David Construction Company. 143
Guardian Trust Company..... 142
Havre De Grace Shipyard Inc..... 143
Hyman-Michaels Co. 142
Kasle Steel Corporation..... 143
Kendall Builders, Inc..... 142
Lubrecht III, William..... 142
Memphis Equipment Company..... 142
Midwest Steel Corporation..... 143
Mississippi Valley Equipment Co.... 143
National Blue Print Company..... 142
National Schools of Construction..... 142
Saginaw Rock Products Company..... 142
Stanhope Inc., R. C..... 143
Telephone Engineering Company..... 142
Wilson Engineering Corporation..... 142

ADVERTISERS IN THIS ISSUE

Acker Drill Co., Inc. 76
Aetna Casualty & Surety Co. 20
Air Placement Equipment Company 76
Allied Chemical Corp., Plastics & Coal Chemicals Div. 119
Allied Materials Corporation 6
Allis-Chalmers 4-5; 77; 79
American-Marietta Co. 121
American Sisalkraft Corp. 92
Armco Drainage & Metal Products, Inc. 80-81
Atlas Copco 65

Bethlehem Steel Co. 1; 135
Bucyrus-Erie Co. 85

Caterpillar Tractor Co., Engine Div. 35-38
Cleveland Tramrail Div. Cleveland Crane & Engineering Co. 96
The Commercial Shearing & Stamping Company 87
Committee on Steel Pipe Research 103
Concrete Reinforcing Steel Institute 145
Crane Co. 21

The Deming Co. 86
Detroit Diesel Engine Div., General Motors Corp. 16-19
R. E. Dietz Co. 10
Dorr-Oliver, Inc. 78
E. I. duPont de Nemours & Co., Inc., Explosives Dept. 116

Euclid Div., General Motors Corp. 88-89

Fairbanks, Morse & Company 136
The Flintkote Company 70
L. B. Foster Co. 2

Gardner-Denver Company 9
Gulf Oil Corporation 72-73
W. & L. E. Gurley 50

Harbert Construction Corp. 84
Homelite Div., Textron Inc. 12
Hyster Company 13

Ingersoll-Rand Company 11
Inland Steel Company 52, 53
Inland Steel Products Company 66
Iowa Manufacturing Co. 128-129

Johns-Manville Corp. 113

Kern Instruments Inc. 83
Koehring Division 51
Koppers Company, Inc., Tar Products Div. 15

Lehigh Portland Cement Company 60-61
R. G. LeTourneau, Inc. 74
Lock Joint Pipe Co. 22
Louisville Cement Co. 14
The Lufkin Rule Company 24
Lukens Steel Company 63

Manitowoc Shipbuilding, Inc. 104
Marion Power Shovel Co. 8
Mayo Tunnel & Mine Equipment 78
McGraw-Hill Book Co., Inc. 94
Mobile Drilling, Inc. 86
Mueller Co. 55

National Clay Pipe Manufacturers, Inc. 130
National Lead Company 71

Ozalid Div., General Aniline & Film Corp. 100

The Patent Scaffolding Co., Inc. 82
Peerless Pump Div., Food Mchy. & Chem. Corp. 133
Penn-Dixie Cement Corp. ..... 2nd Cover
Phoenix Bridge Company 78
Pittsburgh Steel Products Div. 114-115
Portland Cement Association 68-69
Posey Iron Works, Inc. 84

John A. Roebling's Sons Division, The Colorado Fuel and Iron Corporation 59
Rolatape, Inc. 7

Sauerman Bros, Inc. 90
Seismograph Service Corp., Seiscor Div. 54
Sheffield Div., Armco Steel Corp. 105
Shell Oil Company 40-41
Sika Chemical Corporation ..... 3rd Cover
Sikorsky Aircraft Div., United Aircraft Corp. 127
Spencer, White & Prentis, Inc. 62
John W. Stang Corp. 95

The Tapecoat Company 70
Thorp Sales Corporation 75
The Timken Roller Bearing Co. ..... 4th Cover

U. S. Pipe & Foundry Company 98-99
U. S. Rubber Co., Mechanical Goods Div. 26
U. S. Steel Corp. 107-110
Universal Sewer Pipe Corp. 3

Waco Manufacturing Company 122
Weil Pump Company 64
Westinghouse Electric Corp., Apparatus Div. 45-48

Yuba Consolidated Industries, Inc. 56

Zonolite Company 91

Professional Services 144

CLASSIFIED ADVERTISING

F. J. Eberle, Business Mgr.

Employment Opportunities ... 140, 141
Notices
Proposals 137, 138, 139
Equipment
(Used or Surplus)
(For Rent, Sales Wanted) ... 142, 143
Advertisers' Index 144

ENGINEERING NEWS-RECORD

330 West 42 St., New York 36—LOngacre 4-3000

ABP Member ABC

Number of copies of this issue printed 86,358

D. S. ROBERTSON, Advertising Sales Manager
HUGH J. CARLSON, Assistant Business Manager

ADVERTISING REPRESENTATIVES

Atlanta, 3—Rhodes-Haverty Bldg.,
Robert H. Powell, Jr.

Chicago, 11—520 No. Michigan Ave.
L. H. Hunt, W. G. Payne, Earl S. Moore, Jr.

Cleveland, 13—1164 Illuminating Bldg.,
55 Public Square
H. A. Bergstrom, F. P. DiToro

Dallas, 1—Vaughn Bldg., 1712 Commerce St.,
Robert T. Wood

Denver, 2—Tower Building, 1700 Broadway
J. W. Patten

Detroit, 28—Penobscot Bldg.,
R. I. Mace

Los Angeles, 17—1125 W. Sixth St.,
Knox Bourne, S. S. Tiebout

New York, 36—500 5th Ave.
C. D. Neulen, H. T. Olsen
Robert L. Barker

Philadelphia, 3—Six Penn Center Plaza
D. G. Jensen
Patrick Keleher

Pittsburgh, 22—4 Gateway Center
Malcolm Russell

St. Louis, 8—Continental Bldg.,
E. B. Mingle, Jr.

San Francisco, 4—68 Post St.
John J. Hernan

OTHER SALES OFFICES:

Boston 16—350 Park Square Bldg.,
United Kingdom, Edwin E. Murphy, 95 Farringdon St., London E.C. 4.—Germany, Austria, Stan Kimes, 85 Westendstrasse, Frankfort/Main, Germany—Switzerland, Italy, France and Belgium, Michael R. Zeynel, 2 Place du Port, Geneva, Switzerland

New book tells

Where . . .

How . . .

to place reinforcing bars

Written for bar setters and inspectors . . . as a manual for apprentice courses . . . and a reference for specification writers, architects, engineers, and detailers.

Contains complete specifications and instructions for placing reinforcing bars, welded wire fabric, and their supports.

Prepared under the direction of the C.R.S.I. Committee on Engineering Practice.

Concrete Reinforcing Steel Institute
38 South Dearborn Street (Dept. L)
Chicago 3, Illinois

"NEITHER RAIN NOR SNOW NOR DARK OF NIGHT . . . ."

But often forgetting the postal zone number when you address an envelope can delay your letter long enough to miss the appointed round. There are 106 cities in America where a complete address includes a zone number. Always use it when writing to or from these cities.

Big Job at Suez

HEADLINES ABOUT THE SUEZ CANAL usually relate to discrimination against ships carrying cargo to or from Israel, which tends to obscure some of the good things about this great waterway. Not only is the United Arab Republic operating it effectively, but its program of improvements is larger in scale and speedier in schedule than the earlier ones of the old Suez Canal Co.

As described by the UAR's Canal Authority in its last annual report, just out, the program would seem to rate as one of the world's notable construction jobs. And as befitting a great international waterway, there is a distinct international flavor to the undertaking.

Planning and administration stem from the engineers and officers of the Authority. The World Bank has loaned $56.5 million to cover the foreign currencies required. Several Dutch firms, a Belgian firm and a U.S. combine have large dredging contracts. And the U.S. Army Engineers rented the Authority its huge hopper dredge, Essayons, and its crew for a period of six months last year.

Under French-British ownership, seven improvement programs were carried out (1876 to 1954), and the eighth was under way when the UAR took possession. Its purpose was to widen and deepen the canal, thus increasing its wet cross sectional area from 13,000 to 16,200 sq ft. This work is continuing, but in the meantime the Authority has begun a ninth program involving a further increase to 19,500 sq ft. Called the Nasser program, it also envisions the eventual doubling of the canal for its full length.

An idea of the magnitude of the present work—finishing the eighth program and the first stage of the ninth—is furnished by the volume of dredging work involved, 110 million cu yd, to be completed in a three-year period. This is nearly 75% of the total dredged during the 78 years of the previous seven improvement programs, exclusive of maintenance dredging.

The work requires the largest fleet of dredges ever assembled—three big ones owned by the U.S. contractors (Atlantic Gulf & Pacific, Standard Dredging, and Hawaiian Dredging), four of Europe's largest, seven smaller ones owned by the Authority, and the U.S. Essayons, which alone moved 10 million cu yd before she returned home. To the dredging work must also be added over 8 million cu yd of dry excavation and 27 miles of new masonry bank revetment, as well as other improvement work including the construction of a large floating drydock for ship repairs.

The Suez Canal, both for its current activity and for the large and continuous volume of work to come, represents a construction job worthy of world attention. It is first of all a tribute to the technical competence of UAR engineers. But it also testifies to that country's willingness to work constructively with private business interests in the Western nations. Indeed, the big construction job at Suez may be most significant for the contribution it can make to easing world tensions.

Will the El Come Back?

FOR THE PAST DECADE OR TWO the ambition of cities having elevated rapid transit structures has been to pull them down. The unsightly and noisy els were tagged as a principal cause of blight, particularly in the downtown areas. It is, therefore, surprising to find consultants employed by the Los Angeles Metropolitan Transit Authority recommending a predominantly elevated rapid transit system for that city (ENR July 7, p. 24). Can they have found a way to make el structures architecturally attractive and less noisy? Can it be that such a modern el will be acceptable as a non-blight-creating improvement? The answer to the first question is yes, to the second only maybe.

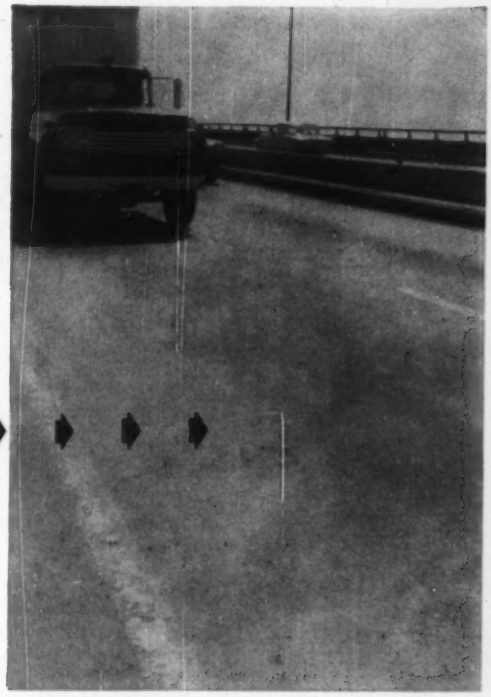
The structure recommended would be made up of single column, T-shaped bents of concrete supporting two hollow concrete girders on which the tracks would be carried. The "rails" would also be concrete and the trains would be equipped with rubber-tired wheels. Compared with the old els, such designs would unquestionably provide a better appearance and less noise.

Whether a street occupied by such a rapid transit line could ever be more than second or third class is more problematical. It is a gamble that Los Angeles residents will have to take if they accept the elevated proposal. On the plus side, the structure is only 20 ft wide, but it will, of course, block out a strip of sky of that width in downtown streets—and even wider where stations occur. The shadows thus created can convert the street below into a distasteful cellar or a pleasant haven from the sun, depending upon one's viewpoint.

Subway lines under the downtown streets would also be practicable in Los Angeles, but the consultants estimate they would be two to three times more expensive. They chose the elevated design because its lower cost would meet the LAMTA requirement that a rapid transit system must pay its own way. There is, of course, no more reason for a municipal rapid transit system to be self-liquidating than for a park system, a school system or a health department. But that, too, is a question that Los Angeles citizens will have to decide.

Except for the pleasant ride in the open air that it afforded, the elevated railway has a particularly bad reputation to live down. A step—and by no means one to be disdained—toward making the el respectable as a mass transportation medium has been taken in Los Angeles. What happens next will be important. It may go far toward determining whether the el will come back. Or whether it should. Traffic-choked cities all across the country will await the Los Angeles reaction with interest.

4 hours ago, a ragged hole ➧ ➧ ➧ ➧



ON THE NEW JERSEY TURNPIKE, ILLUSTRATED ABOVE, A SIKA CREW OF 3 MEN USING SIKA EPOXY PATCHING COMPOUND AND AN ELECTRIC MIXER PATCHED 40 HOLES IN AN 8-HOUR SHIFT.

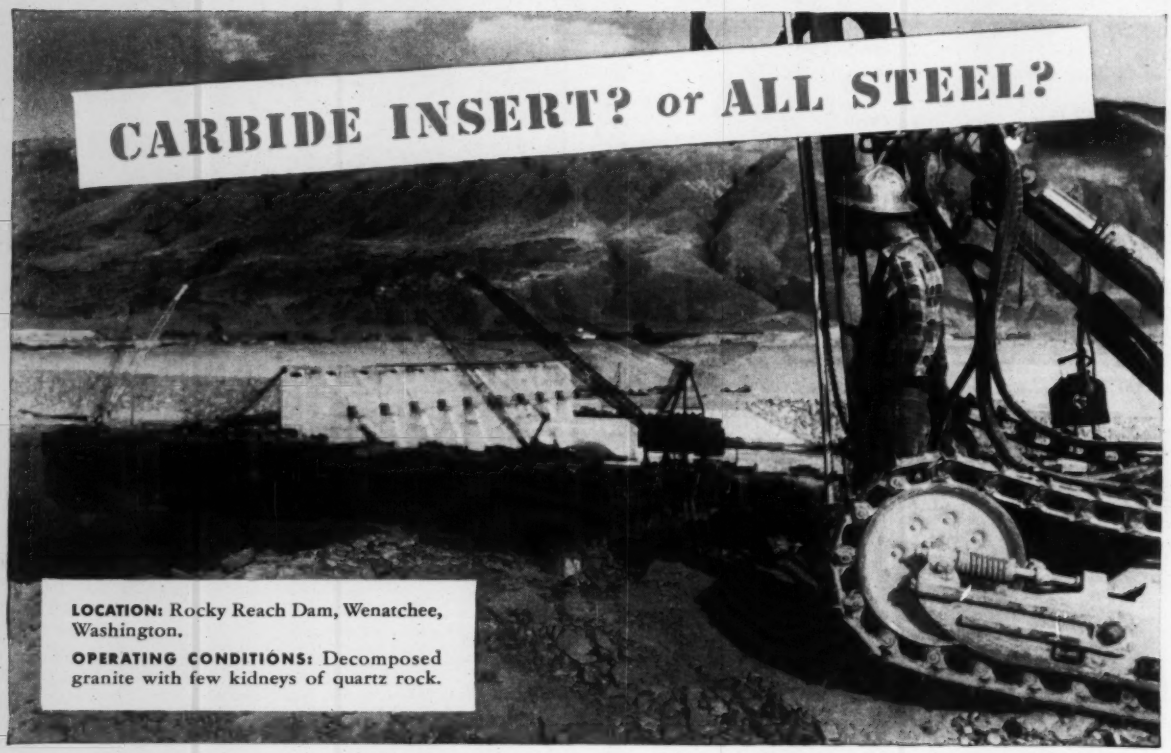
Reduce pavement repair time with Sika Epoxy Patching Compound. At 70°-80°F, these epoxy patches will take heavy highway traffic in 3-4 hours. They can be placed with a minimum of manpower and equipment.

Sika Epoxy Patching Compound has been developed specifically for modern super-highway traffic. Epoxy patches last. Write for Bulletin SEC for all the facts.

Sika

SIKA CHEMICAL CORPORATION

Passaic, N. J.


CARBIDE INSERT? or ALL STEEL?
LOCATION: Rocky Reach Dam, Wenatchee, Washington.
OPERATING CONDITIONS: Decomposed granite with few kidneys of quartz rock.

"We drill 1400 to 2000 feet of blast hole per bit with TIMKEN® carbide insert bits"

...Reports Goodfellow Brothers, Inc.

DRILLING to relocate the Great Northern Railroad and Highway near Wenatchee, Washington, Goodfellow Brothers, Inc. selected Timken® carbide insert bits to drill blast holes in the decomposed granite and kidneys of quartz rock. Regrinding both gauge and flutes, they got 1400 to 2000 feet of blast hole from every bit.

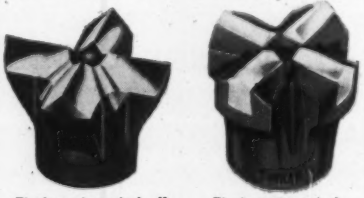
That's the kind of performance you get with Timken carbide insert bits when conditions call for them. Their five front holes and deeper wing clearance help clear chips faster. You drill rock instead of chips.

But carbide insert bits may not always be your best bet. In ordinary ground, you'll save more with Timken all-steel bits. With correct and controlled reconditioning, they give you lowest bit cost per foot of hole when you can drill out full increments of steel.

But whatever your drilling conditions and whatever type of bit you use, your drillers will save time and you'll save money with Timken bits. They're all interchangeable in the same thread series. Your drillers can change bits as fast as the ground changes—without changing drill steels.

All Timken bits are made of Timken electric furnace fine alloy steel. We're the only American maker of removable rock bits who takes that extra step. And you get extra protection from a special shoulder union that protects threads from drilling impacts.

Get the right and most economical bit for your drilling jobs. Call or write: The Timken Roller Bearing Company, Rock Bit Division, Canton 6, Ohio. Cable: "TIMROSCO".



Timken threaded all steel multi-use rock bit

Timken threaded carbide insert rock bit

TIMKEN®

removable rock bits

your best bet for the best bit for every job